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ABSTRACT

The Peace Corps (PC) has provided teachers for Nepal's schools for 25 years. The increasing population and especially the increased demand for educational opportunities is exceeding the supply of available trained teachers. In response to this need, PC/Nepal has shifted its emphasis in the education sector from providing teachers to providing teacher trainers. The purpose of this task analysis is to define this new PC role and to provide systematic information for preservice and inservice training activities. This document contains four sections: (1) task analysis; (2) job description; (3) technical training sessions; and (4) technical readings. The task analysis was developed through interviews and review of program materials and documentation. The other sections were developed based upon the task analysis. The job description, technical training sessions, and technical readings were compiled into a technical training manual which the mathematics and science trainees received during the first week of the preservice training. The last two sections are organized into general teacher and mathematics/science teacher training sessions. (Author/YP)

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Peace Corps Nepal 1988 Preservice Technical Training Manual for Math and Science Teacher Trainers N/166a

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Peace Corps has provided teachers for Nepal's schools for twenty-five years. The increasing population and especially the increased demand for educational opportunities is exceeding the supply of available trained teachers. In response to this need, Peace Corps Nepal has shifted its emphasis in the education sector from providing teachers to providing teacher trainers. This program is in its developmental stages.

This task analysis was requested by the PC/Nepal staff in order to more clearly define this new PC role and to provide systematic information for preservice and inservice training activities.

This document contains four sections: Task Analysis, Job Description, Technical Training Sessions, and Technical Readings. The Task Analysis was developed through interviews and review of program materials and documentation. The other sections were developed based upon the task analysis. The Job Description, Technical Training Sessions, and Technical Readings were compiled into a technical training manual which the math/science trainees received during the first week of the preservice training.

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Task Analysis

Job Description

Technical Training Sessions

Technical Readings

Peace Corps/ Nepal
Task analysis: First year Teacher Trainers
Group N166a
1988

		I	F	D	T	C R A M P
1.00	**Considers development role as most important.**	5	5	5	15	X _ X X _
1.10	Formulates a definition of development.	5	1	1	7	X _ X X _
1.20	Can describe how the teacher training role became a specific request of HMG.	5	1	1	7	X _ _ _ _
1.30	Values development as a way to "work themselves out of a job".	4	3	2	9	X _ X _ _
1.40	Values the "multiplier effect" of a development role.	3	3	3	9	X _ X _ _
1.50	Values the impact of development, both in teacher trainings and in classroom experiences.	5	4	3	12	X _ X _ _
2.00	**Operationalizes project related activities in the first year to maximize efficiency and reduce school disruption.**	4	5	5	14	X X X _ _
2.10	Plans first year calendar based upon project requirements and school responsibilities.	5	2	3	10	X X X _ _
2.11	Coordinates with project personnel to determine dates for various project activities.	4	3	3	10	_ _ X _ _

KEY:
I-importance, **F**-frequency, **D**-difficulty, **T**-total
(5-high 3-moderate 1-low/none)
C-comprehension, **R**-reflex, **A**-attitude, **M**-memory, **P**-procedural

		I	F	D	T	C R A M P
2.12	Works with HM to determine school responsibilities and associated dates.	5	3	3	11	X X _ _ _
2.13	Considers personal well being and mental health when scheduling personal leaves.	4	3	2	9	_ X _ _ _
2.20	Participates in project teacher training workshop.	3	1	3	7	X X X _ _
2.21	Can coordinate dates, venue, and tasks with project personnel.	3	1	3	7	_ _ X _ _
2.22	Recognizes importance of project participation.	5	3	3	11	_ _ X _ _
2.23	Practices data gathering/ observation skills.	5	4	3	12	_ _ _ _ X
2.24	Willing to work with HCN project colleagues in planning and training situations.	4	3	4	11	_ _ X _ _
2.25	Can assess workshops.	3	3	3	9	_ _ _ _ X
2.26	Displays initiative and adds motivational spark to project workshop sessions.	4	5	4	13	X _ X _ _
2.27	Demonstrates platform skills.	3	3	3	9	_ _ _ _ X
2.28	Models workshop organizational skills.	3	3	3	9	_ _ _ _ X
2.29	Values the importance of workshop follow-up visits.	4	2	4	10	X _ X _ _
2.30	Participates in project meetings and/or conferences.	5	3	3	11	X _ X _ X
2.31	Plans absence from school on short notice.	4	2	4	10	_ _ _ _ X
2.32	Chooses to attend project meetings and conferences.	4	3	3	10	_ _ X _ _

		I	F	D	T	C R A M P
2.33	Values the importance of project meetings and conferences.	4	4	3	11	_ _ X _ _
2.34	Flexible response to project changes.	5	5	5	15	X _ X _ _
2.40	Works effectively within project infrastructure.	5	4	4	13	X X X X X
2.41	Pursues orientation to project individually.	4	4	4	2	X _ X _ _
2.42	Reads job descriptions of colleagues.	4	1	2	7	X _ _ _ _
2.43	Understands the impact of the MOEC institutionalization of their job.	4	3	3	10	X _ X _ _
2.44	Values colleagues administrative roles.	4	3	3	10	X _ X _ _
2.45	Chooses to view RP/SMT, and FC as "senior colleagues".	4	4	3	11	_ _ X _ _
2.50	Submits quarterly reports to PC/N and to the project.	5	4	3	12	_ _ _ _ X
3.00	**Operationalizes role as teacher to maximize development role.**	5	5	4	14	X X X X X
3.10	Develops professional relationship with the their supervisor (HM).	5	4	4	13	X _ X _ X
3.11	Negotiates with the HM for optimum number of teaching periods per week.	5	3	3	11	X _ _ _ X
3.12	Negotiates with the HM in order to match subject and grade to second year assignment.	5	3	3	11	X _ _ _ X
3.13	Negotiates and reaches consensus with the HM on project related required leaves of absence.	5	2	3	10	X _ _ _ X

		I	F	D	T	C R A M P
3.14	Participates positively in staff meetings and other school functions.	4	3	3	11	X _ X _ X
3.20	Develops professional/ social relationships with the teachers.	5	4	4	13	_ _ X _ _
3.21	Chooses to spend time with teacher(s) during (some) free periods both professional and social.	4	4	3	11	_ _ X _ _
3.22	Solicits assistance from teachers in developing instructional materials.	4	4	4	12	X _ X _ _
3.23	Develops a detailed profile (audience analysis) of the teachers in their school.	3	2	3	11	X _ _ _ X
3.30	Develops teaching skills.	5	5	4	14	X X X X X
3.310	Utilizes the curriculum effectively.	4	5	3	12	X _ _ X _
3.311	Compiles a list of teaching topics from the textbooks including previous grades.	4	4	2	10	_ _ _ _ X
3.312	Outlines textbook chapters.	4	4	2	10	X _ _ _ X
3.313	Analyzes the level of the questions for each chapter.	4	3	3	10	X _ _ _ X
3.314	Develops simple hands-on activities for each chapter.	5	4	4	13	X _ _ _ _
3.315	Breaks chapter topics into appropriate learning chunks.	4	4	4	12	X _ _ _ X
3.316	Sequences chunks before teaching.	4	4	3	11	X _ _ _ X
3.317	Accepts that textbook is the curriculum.	5	4	3	12	X _ X X _

		I	F	D	T	C R A M P
3.318	Values the curriculum as the source of examinations.	5	4	2	11	_ _ _ X _
3.320	Utilizes examinations effectively.	5	3	5	13	X _ X X X
3.321	Analyzes examination question level and content categories.	4	2	4	10	X _ _ X X
3.322	Authors half yearly and final examinations as required.	5	3	4	12	X _ X X X
3.323	Experiments with a variety of examination methods.	4	4	4	12	X _ X _ _
3.324	Administers examinations frequently.	3	4	4	11	_ _ X _ X
3.325	Evaluates and revises examination types and methods continually.	4	4	4	12	X _ _ _ _
3.326	Devises methods to discourage cheating.	4	4	4	12	X _ _ _ X
3.330	Develops an analysis/ understanding of their students.	4	3	4	11	X _ _ X X
3.331	Considers child development theories.	4	3	3	10	X _ _ X _
3.332	Develops a profile of their students.	4	2	3	9	_ _ _ _ X
3.333	Considers student's instructional expectations.	4	4	3	11	X _ X _ _
3.334	Values student's test needs.	4	5	3	12	X _ X _ _
3.335	Accepts student's viewpoint concerning cheating.	4	4	5	13	X _ X _ _
3.340	Utilizes instructional materials effectively.	5	4	4	12	X X X X X

		I	F	D	T	C R A M P
3.341	Develops instructional materials from available sources.	5	4	4	12	X X _ _ _
3.342	Solicits assistance from teachers in using materials.	4	5	4	13	X _ X _ _
3.350	Teaches effectively.	5	5	5	15	X X X X X
3.351	Writes complete objectives based on appropriate chunk size and sequence.	3	4	3	10	_ _ _ X X
3.352	Develops a functional routine lesson plan format.	4	4	3	11	_ _ _ _ X
3.353	Writes lesson plans for each lesson.	4	4	3	11	_ _ X _ _
3.354	Modifies appropriately the Nepali teaching method.	4	5	4	14	X _ _ _ _
3.355	Uses a variety of teaching methods.	5	4	4	13	X X X X X
3.356	Incorporates demonstrations and hands-on experiences.	5	5	4	14	X _ X _ _
3.360	Practices flexible, but consistent and effective classroom management and discipline techniques.	5	5	5	15	X X X X X
3.361	Organizes students for class transitions (eg.class changes, begin and end of demonstrations).	5	5	4	14	_ _ _ _ X
3.362	Develops effective classroom discipline.	5	5	5	15	X _ X X X
3.363	Solicits advice from the other teachers.	5	4	4	12	_ _ X _ _
3.364	Coordinates discipline measures with the HM.	4	4	3	11	X _ X _ _

		I	F	D	T	C R A M P
3.365	Experiments with various management techniques.	4	4	4	12	X _ X _ _
3.370	Participates fully in other school responsibilities such as staff meetings, sports events, school functions, and trips.	4	4	2	10	X _ X _ _
4.00	**Operationalizes development role in the community.**	5	5	4	14	X X X X X
4.10	Values the authority of the DEO.	5	3	3	11	X _ X X _
4.11	Initiates and maintains contact with the DEO.	5	2	3	10	_ _ X _ X
4.12	Willing to share success with DEO.	4	2	4	10	X _ X _ _
4.20	Values the roles of project personnel.	5	4	2	10	X _ X X _
4.21	Initiates and maintains contact with SMT/RP, FC.	5	4	3	12	X _ X _ _
4.22	Willing to take the role of motivator or initiator with project personnel.	5	5	5	15	X _ X _ _
4.23	Accepts project personnel as colleagues.	5	5	4	14	_ _ X _ _
4.30	Teaches subject in a way that will improve quality of life at the village level.	5	5	5	15	X X X X X
4.31	Emphasizes and makes relevant health and quality of life topics mentioned in the textbooks.	5	5	5	15	X _ X _ X
4.32	Models significant health practices.	5	5	5	15	X X X X X
4.33	Models other activities that can impact quality of village life.	4	4	4	12	X X X X X

		I	F	D	T	C	R	A	M	P
4.33	Discusses with teachers methods of introducing extra-curricular health topics.	3	2	3	8	X	_	X	_	_

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definitions:
projects - teacher training assignment with PEP, SEDEC, or PTTP
HCN - host country national
workshop - a project sponsored teacher training
DEO - District Education Officer, a Ministry Official
FC - Field Coordinator
RP - Resource Teacher PEP
SMT - Subject Matter Trainers
MOEC - Ministry of Education and Culture
HM - Headmaster

Task Analysis

Job Description

Technical Training Sessions

Technical Readings

Job Description for PCV Teacher Trainers

Rationale:

The entire first year of volunteer service for PCV teacher trainers may be viewed as a year of preparation and training for the second year of service. This should not imply that the PCV is on "hold" for the year, since numerous development experiences in their school and community are available during that time. In fact, the PCV teacher trainer is in a unique position to experience the rewards and frustrations of both a regular classroom teacher during their first year, and of a teacher trainer of Nepali teachers during their second year.

Some volunteers encounter problems with transition from PST to teaching, and then from teaching to teacher training, especially when they have not clearly identified their development role in Nepal. The PCV's teaching role can provide structure and community recognition, which allows the PCV to be a model for various development activities. During their second year, the PCV's development roll shifts to teacher training, and tends to have less structure. The skills, knowledge, and contacts acquired during the first year will be important in helping to make this transition.

Job Description for PCV Teacher Trainers: first year

Goals:

1. The PCV should consider their project related development role as a teacher trainer as important during their entire term of service.

2. The PCV should consider their classroom teacher role as primary during the first year, and should carry out this role in a way that will positively effect their development role.

Tasks:

1. The PCV will participate in a teacher training workshop, conducted by the project, during their first year of service, following discussions with the Head Master (HM).

2. The PCV will participate in project meetings or conferences, which might be called unexpectedly.

3. The PCV will plan their first year's activities based upon the school calendar, discussions with the HM, and consultations with appropriate project personnel.

4. The PCV will initiate contacts with teachers and HMs in cluster schools with the objective of collecting information which will be helpful in their second year.

5. The PCV should develop a detailed profile of a Nepali teacher based upon their particular school.

6. The PCV will develop and submit quarterly reports and action plans to PC/N and the project detailing these above activities.

7. The PCV should develop an appropriate working relationship with their HM.

8. The PCV should negotiate with the HM to teach an optimal number of classes per day (2-3 to begin with). Quality rather than quantity should be emphasized. Later, the number of periods may be increased as agreed upon by the PCV and HM.

9. The PCV should negotiate with the HM to teach classes related to their second year's assignment (subject and grade).

10. The PCV should initiate and maintain contacts both professional and/or social with other teachers in their school.

11. The PCV should solicit assistance from other teachers in developing instructional resources from locally available materials. (In the short term, it would be more efficient to develop these materials alone, however such cooperative tasks are most effective for the long term transfer of skills and attitudes.)

12. The PCV should be totally familiar with the curriculum (which means textbooks and examinations in Nepal) for their grades and subject. A review of information from earlier grades would be helpful.

13. The PCV, understanding the constraints of the Nepali education system and the requirements of their students, will teach using appropriate methods; but will continually experiment with and adapt teaching techniques in order to develop a backlog of experiences for use in teacher trainings.

14. The PCV is encouraged to incorporate simple demonstrations and experiments into their teaching.

15. The PCV should administer half yearly and final examinations as instructed by their HM.

16. The PCV should set more frequent examinations patterned upon District level exams and the SLC, perhaps at chapter breaks or monthly. The PCV should also utilize a variety of examination/ assessment formats, and develop alternative ways to give examinations,(eg. multiple choice, True-False, CLOZE, puzzles) in order to develop a backlog of success with various procedures.

17. The PCV will strive to develop effective discipline methods and classroom routine and control in concert with the HM.

18. The PCV will participate in extracurricular school activities (sports, staff meetings, trips) as part of their normal teaching role.

19. The PCV will pay courtesy calls on the DEO during post visit and early in the first year of service, and then strive to maintain contact with him.

20. The PCV will become familiar with and effectively utilize resource persons within the educational system (DEO, SMT, FC, RP).

21. The PCV will carry out activities especially related to their health and personal well being.

Task Analysis
Job Description
Technical Training Sessions
Technical Readings

Go in search of your people
Love them
Learn from them
Plan with them
Serve them
Begin with what they have
Build on what they know

But of the best leaders
When their task is accomplished
the work is done
the people will all remark
"We have done it ourselves"

Lao Tsu

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ORIENTATION TO TECHNICAL TRAINING

Goals:

After this session, you should be able to:

1. Explain the objectives for the technical component.
2. Use the technical training calendar as a training session guide.
3. Explain training expectations.

Rationale:

Preservice training (PST) is a demanding, lengthy, and intense set of experiences. This session should help you to prepare for PST mentally by presenting the technical component objectives and by relating the PST technical calendar sessions to these objectives. The session will also cover some PST technical ground rules or expectations.

Activities:

1. Review and explain the technical component objectives.
2. Explain technical training in relation to the PST calendar.
3. Discuss training expectations.

Preparation:

1. Read the objectives for the technical component.
2. Review the PST calendar.
3. Read the essay, AMOUNT OF STRUCTURE IN TRAINING, TECH pp. 2,3.

THE PCV TEACHER TRAINER AND DEVELOPMENT

Goals:

After this session, you should be able to:

1. Begin to formulate a personal definition of what development is and is not.
2. Discuss your personal development role.
3. State how some Nepalis regard development.

Rationale:

This session is basically an introduction to ideas about development. Your development role as a teacher trainer relates to the proverb: "Give a person a fish, that person can eat this day; show that person how to fish, that person can eat for a lifetime." Though this sounds simple, it can be the most difficult job of all because it demands constant self-motivation, almost unreasonable flexibility, and unbounded optimism. Therefore, you should begin to ask "What is development to me?" to help you establish reasonable expectations about your role here.

Activities:

1. Large group lecture/discussion with PC/Nepal staff member.
2. Development dialogue with Nepali nationals.

Preparation:

1. Read THE PCV AND DEVELOPMENT, TECH pp. 4-10.

SCHOOL VISIT AND TEACHING OBSERVATION

Goals:

After this session, you should be able to:

1. Describe the teaching context of Nepali schools.
2. Report your observations of a Nepali teacher.
3. List some student - teacher dynamics.

Rationale:

Teaching in Nepal is very different from teaching in the U.S. This school visit should help you to imagine what your school will be like, especially in terms of human dynamics. It will also provide a basis for many other technical sessions. In a later session, after observing a PCV in the classroom, you will compare and contrast the teaching styles that you observed.

Activities:

1. Observe several classes.
2. Discussion of your observations with the group.

Preparation:

1. Language sessions on greetings for the headmaster and teachers.
2. Read ESCHOOL, TECH pp. 11-15.

Venue:

The same school to be used in micro-teaching later.

PCV AND RELATIONS WITH THE NEPALI TEACHERS

Goals:

After this session, you should be able to:

1. Describe the importance of establishing rapport with members of the teaching staff.
2. Value the importance of interacting with the teaching staff.
3. Develop a teacher profile.
4. Define the role of Headmaster and discuss ways to interact with your headmaster (supervisor).

Rationale:

In your school community, your role is TEACHER. Not conforming to this role can cause an endless series of problems. An important part of your teaching role revolves around maintaining positive relations with the other teachers. This role includes asking them for help, smiling and greeting them, and doing activities or playing games with them. Like teachers in the U.S., there will be some teachers that you get along with well and some that you don't.

The teachers in your school can be the greatest source of challenge and growth during your volunteer experience. Probably those things about them that bother you most are the same areas of potential change for you.

Activities:

1. Describe PCV / teacher interactions during an average school day.
2. Brainstorm some possible problems that can occur if the teachers are neglected or slighted.
3. Discuss methods for developing relationships with the teachers.
4. Discuss the role of Headmaster and the importance of maintaining this relationship.

Preparation:

1. Read VOLUNTEERING IS CHOOSING, TECH p. 16.
2. Read SOME PCV TEACHING SUGGESTIONS FROM NEPAL/3, TECH pp. 30-32.

THE CURRENT EDUCATIONAL STRUCTURE IN NEPAL

Goals:

After this session, you should be able to:

1. Explain the yearly school calendar, including exams and special events.
2. Make a chart of the educational system for grades one through ten.
3. Utilize the school calendar for planning activities.
4. Explain the operating hierarchy of a school.
5. Discuss some constraints of Nepali teachers.

Rationale:

This session serves as an orientation to the Nepali educational structure, and should help you to develop the background of your PCV assignment. You should begin to develop reasonable expectations of your school, of your Headmaster and teachers, and of your students based upon the constraints of the system (lack of money, teaching time, educational background, low salaries, family responsibilities).

Activities:

1. Discuss the education system hierarchy.
2. Copy a chart of the educational structure for grades 1-10.
3. Complete a typical school calendar for the year with discussion of the optimum teaching dates and also the "slow down" dates during the year.
4. Discuss some constraints of the system.

Preparation:

1. Pad and pen to draw the chart and the calendar for your notes.
2. Language preparation including Nepali months, calendar words, holidays, numbers, names of "Thulo Manche - haru".

PCV DEMONSTRATION LESSON

Goals:

After this session, you should be able to:

1. Further develop the context of a Nepali school.
2. Compare and contrast the PCV and Nepali teaching methods.
3. Describe student - PCV teacher dynamics.

Rationale:

This session will provide you with another model of "What works" here. Your own attention and observation skills will determine how much you gain from this observation. Keep in mind that the PCV's teaching method has evolved through daily trial and error experiences.

In the discussion following the observation, be sure to mention points that bothered you and also those points that you liked.

Activities:

1. Observe a PCV teaching a lesson (by subject area).
2. Discuss your observations with the group.

Preparation:

1. Read ONE DAY AT AJAD HIGH SCHOOL, TECH pp. 17-21.
2. Read TYPICAL DAY AT CHANDU HIGH, TECH pp. 22,23.

Venue:

The same school as before.

THE CURRICULUM AND TEXTBOOKS

Goals:

After this session, you should be able to:

1. Organize (outline) the topics in a chapter.
2. Correlate these topics with topics from previous grades.
3. Discriminate important and unimportant information in the chapter.
4. Classify the questions in the text.
5. Understand that the textbook is the curriculum.
6. Value the importance of the textbook as the source of examinations.

Rationale:

Textbooks serve a vital role here as 1) the expression of the syllabus and curriculum, and 2) the source of examinations. For this reason, students from the fourth grade and up will expect you to "cover" the content of the book. Perhaps even more important is your ability to discriminate what is important in the text and then to organize this logically. As you teach, you ability to organize abstract thought will be transferred incidentally to your students allowing them to develop new patterns of thought which has the potential for long term impact.

Activities:

1. In small groups, outline a chapter.
2. Cross check the same topic from the previous grade.
3. Discuss Bloom's taxonomy (cognitive).
4. Classify the level of the textbook questions.
5. Discuss your observations.

Preparation:

1. English translations of the texts will be provided.
2. Read the handout on BLOOM'S COGNITIVE TAXONOMY, TECH p. 24.

Materials:

Textbooks and English translations.

LOOKING AT TESTS

Goals:

After this session, you should be able to:

1. Discuss the Nepali examination system.
2. Describe the mid and end year examinations for your subjects.
3. Develop exam questions of the same type, and also alternative types of exam questions.
4. Develop a marking key for the items that you write.

Rationale:

Passing and failing examinations is the heart of the education system i Nepal. Certain content and formats are repeated each year or in cycles of years. A thorough analysis of past tests will allow you to discriminate the important topics and will guide your teaching in other ways.

Activities:

1. Lecture on the Nepali examination system.
2. In small groups, analyze several examinations. Look for repeated content, question format, and cognitive level of the questions.
3. Write several tests items like these and develop a marking scheme for each item. Share ideas with the group.
4. Write several alternative types of test items, share these with the group, comment on good and bad items and reasons why.

Preparation:

1. Read USEFUL EXPRESSIONS FOR MAKING TESTS, TECH p. 25.
2. Read GENERAL HINTS ON TESTING, TECH pp. 26,27.
3. Read A WORD ON CHEATING, TECH pp. 28,29.

Notes:

Prepare an examination for practice teaching, to use in a teach - test - reteach cycle.

GIVING TESTS

Goals:

After this session, you should be able to:

1. State alternative viewpoints on cheating.
2. Discuss ways that cheating might occur.
3. Give tests in a way that will minimize cheating.

Rationale:

You have a built-in cultural bias against cheating that most of your Nepali students do not have. In fact, the word as we use it in English is borrowed by Nepali's suggesting that this viewpoint is also borrowed. Our culture believes that sharing is good (snacks, meals, etc.), but we draw the line at sharing information on tests.

Cheating involves explicit rules; for example, if a teacher in the U.S. says that a test is open-book, or that the test is a take-home group test, we don't consider this to be cheating. In fact, we would be foolish not to open our book or notes, or work with our group, because everyone else will certainly do better than us on that test. Cheating then is bending the rules. If the rules are clearly stated and strictly enforced, then everyone will have an equal or fair chance.

There are many ways to bend the rules, some are creative and some are stupid. By anticipating cheating, you can structure your test situations to minimize cheating.

Activities:

1. Discuss how we developed our notion of cheating.
2. Lecture on the implications of examinations, how tests are given, politics, and pass mark.
3. Brainstorm a list of ways that students might cheat.
4. Develop solutions of how to minimize cheating. Include some rules with consequences, use of spacing, use of alternate test forms, and others.

Preparation:

1. Read SOME PCV TEACHING SUGGESTIONS FROM NEPAL/3, TECH pp. 30-37.

PEACE CORPS/ NEPAL AND EDUCATION,
A HISTORICAL PERSPECTIVE

Goals:

After this session, you should be able to:

1. Describe where PC/Nepal has come from and where it is going.
2. Explain the first year job description for teacher trainers in relation to PC tradition (the BIG PICTURE).

Rationale:

Peace Corps has been involved in education in Nepal since 1962. Students of past PCV teachers are now in positions in Government and business and still remember their Peace Corps Sir/Madame (often vividly).

Nepal's educational system is changing and with it, PC/Nepal's role is also evolving. The job offered to you by HMG is part of a bigger picture of development through education, and makes you a part of a continuing Peace Corps tradition.

Activities:

1. Explain the PC/N education sector: past, present, future. (PC/staff)
2. Discuss the volunteers role and responsibility within the big picture of Peace Corps' involvement in Nepal.

POST SELECTION ORIENTATION SESSION

Goals:

After this session, you should be able to:

1. Focus on what is important in a post and in a program.
2. Describe the selection and orientation procedure.
3. Read and understand the post report format.

Rationale:

The TEFL, PEP, and SEDEC programs are different. Posts are different. People are different. This session provides information that will help you to negotiate your post placement.

Activities:

1. Brainstorm about what is important (personal) in a post.
2. Description/overview of the different programs and the PCV selection process.
3. Explanation of the Post Report Format, how they are developed, and who wrote them.
4. Open review of post reports.

CHILDHOOD DEVELOPMENT

Goals:

After this session, you should be able to:

1. List and define Piaget's four stages of mental development and the approximate ages of onset of each for Nepali children from different regions (urban, rural).
2. List Bruner's three categories of knowing.
3. Discuss the implications of these developmental theories for your teaching.

Rationale:

Research over a number of years suggests that children pass through a sequence of mental stages as they grow older. Before certain ages, children are believed to be incapable of doing certain mental tasks. These stages are determined by heredity (fairly constant across cultures, but poor nutrition has an impact) and by environment (varies across cultures). Research in Nepal and other countries suggests that children in an oral culture (like Nepal) tend to developmentally lag behind U.S. children by from 2 to 4 years, sometimes more.

You should be familiar with these ideas because they can have direct implications for teaching. Especially, try to use concrete and meaningful examples, and use demonstrations and hands-on experiences as much as possible to illustrate your lessons.

Activities:

1. Small groups prepare and deliver sessions to the large group on the concepts of developmental stages.
2. Discuss general principles based upon the implications of these theories.
3. Discuss the possible reasons for and the implications of a developmental lag in a primary oral culture.
4. Discuss and share subject specific activities that are appropriate for children at different stages of development.

Preparation:

1. Read DEVELOPMENTAL THEORIES, TECH pp. 39-41.

2. Read ORALITY AND LITERACY, TECH pp. 42-46.
3. (Optional) Most education textbooks have a chapter devoted to theories of childhood development.
4. (Optional) Read pages 61-65 in the Peace Corps Teacher Training Manual.

PREPARATION FOR MICRO-TEACHING

Goals:

After this session, you should be able to:

1. Describe the activities and expectations of micro-teaching.
2. Give and receive teaching suggestions (feedback) after observing a lesson.
3. Begin to prepare micro-teaching lessons.

Rationale:

Micro-teaching is an opportunity for you to develop your teaching and presentation skills. You will teach in pairs to a small class of students in a nearby school. You and your partner will take turns teaching the class. Immediately after the teaching session, get together with your partner and state what you observed. Focus on only a few points, both good and bad. When you reteach this lesson the next day, utilize this information to improve your lesson.

This pair-teaching/observation technique will continue throughout micro-teaching and to a limited extent, continue during practice teaching. This will provide you with information to help you improve your own teaching as well as an opportunity to practice clinical observation skills that can be useful during your second year of teacher training.

Technical sessions will provide you with ideas and techniques that you can use during micro-teaching.

Activities:

1. Explain the micro-teaching schedule and logistics.
2. Discuss giving and receiving feedback.

Preparation:

1. Check PST calendar for micro-teaching dates, note major Dasain holidays.
2. Read GIVING AND RECEIVING FEEDBACK, TECH p. 47.

WRITING GOALS AND OBJECTIVES

Goals:

After this session, you should be able to:

1. Explain the purpose of goals and objectives.
2. Write complete objectives.
3. Rewrite poorly written objectives.
4. Describe how you will use objectives in your teaching.

Rationale:

Though many teachers do not write out objectives, all good teachers have in mind what they want their students to accomplish. Knowing specifically what you want your students to accomplish helps in planning the lesson, provides focus during the lesson, recommends types of guided practice, allows for accurate checking for understanding during the lesson, and provides for fair testing / assessment after the lesson.

A brief view of what makes a good objective as well as an honest discussion of how objectives are actually used is in order.

Activities:

1. Peer facilitated small group session on objectives.
2. Rewrite poorly written objectives.
3. Discuss the practical use of objectives in your classroom.

Preparation:

1. Read INSTRUCTIONAL OBJECTIVES, TECH pp. 48-51.
2. (Optional) Read pages 77, and 81-83 in the Peace Corps Teacher Training Reference Manual.

Note:

Begin to use objectives in micro-teaching.

LESSON PLANS

Goals:

After this session, you should be able to:

1. List the activities that make up a lesson.
2. Value lesson planning as a way to improve your teaching.
3. Write lesson plans for micro-teaching.

Rationale:

Obviously, a planned lesson will probably be better than an unplanned lesson. Better, in this case, means focused, well sequenced with smooth transitions, built in ways to check for student understanding, practice items for students, a summary, and assessment.

Each subject area will have a slightly different blend of these lesson activities. English will probably have a lot of drill and practice, math will focus on solving sets of problems, science will tend to center on demonstrations and in some cases experiments. Activities should be meaningful for the students, although all elementary schools (U.S. and Nepal) must deliver certain rote learning activities.

Activities:

1. Prepare and present a section of a lesson to the large group.
2. Summarize and discuss lesson planning.

Preparation:

1. (Optional) Read pages 87-95 in the Peace Corps Teacher Training Reference Manual.
2. Read WHAT'S IN A LESSON PLAN?, TECH pp. 52-57.
3. Read LESSON PLANNING FOR MATH/SCIENCE, TECH pp. 58.

Notes:

Begin to use a routine lesson plan format during micro-teaching.

CLASSROOM MANAGEMENT

Goals:

After this session, you should be able to:

1. Make a list of problems you will probably encounter in your classroom.
2. Suggest several possible solutions to these problems.
3. Identify classroom management areas that you feel would be personally troublesome.

Rationale:

A classroom is a (the) society in microcosm with roles and rules for maintaining order (or disorder). Rules are important because they define the roles of the actors. In your classroom, roles and rules will develop, either with you or in spite of you; and either to your advantage or disadvantage. Therefore, it is important that you consciously set up the classroom society to your advantage. Take on your role as teacher - YOU ARE THE TEACHER -. Conform to your role, and the students will respond to it.

This session will provide some situations and ideas that will aid you in establishing effective classroom management practices. The old saying "An ounce of prevention is worth a pound of cure" is appropriate. Also, experienced teachers always start strict with a new class. You can always ease off if the class deserves it, but it is nearly impossible to start easy and then become strict.

Activities:

1. Observe several classroom skits by the language teachers.
2. After reading the case studies, list solutions of your own.
3. Sharing of solutions with group, discussion of consequences of solutions.
4. Development of general management principles/philosophy.

Preparation:

1. Read CRITICAL SITUATIONS THAT MIGHT ARISE IN THE NEPALI CLASSROOM, TECH pp. 59-65.

GIVING HOMEWORK IN NEPAL

Goals:

After this session, you should be able to:

1. Discuss student's constraints relating to homework.
2. Use correct terminology when making specific homework assignments.
3. Give reasonable homework assignments during micro-teaching.

Rationale:

Homework is an important teaching tool, but the constraints of students must be considered. Be slow and cautious when assigning homework. Check with the other teachers to determine the standard policy for homework.

Activities:

1. Discuss possible problems associated with homework.
2. Review and learn terms associated with homework.
3. Brainstorm ways to get students to turn-in homework.

Preparation:

1. Read HOMEWORK, TECH pp. 66.

Notes:

Assign homework during micro-teaching.

PREPARATION FOR PRACTICE TEACHING

Goals:

After this session, you should be able to:

1. Describe the activities and logistics of practice teaching.
2. Begin to prepare your practice teaching lessons.

Rationale:

Practice teaching is an opportunity for you to further improve your teaching and presentation skills. You will teach in a school during the regular term with a small group of about three of four other trainees. Other groups will be teaching at other schools near-by. Take turns observing and giving feedback to each other.

This teaching/observation technique will continue throughout practice teaching as a way to provide you with feedback about your own teaching as well as a chance to practice clinical observation skills.

Activities:

1. Explain the practice teaching schedule, procedures, and expectations.
2. Question and answer session about practice teaching.

Preparation:

1. Check the PST calendar for practice teaching dates.
2. Read GIVING AND RECEIVING FEEDBACK, TECH p. 47.

ABCs OF NEPALI MATH TEACHING

Goals:

After this session, you should be able to use the Nepali method (the songs and algorithms) for the following math operations:

1. Addition, subtraction, and division.
2. Fractions.
3. Multiplication song.
4. Highest common factor (HCF).
5. Lowest common multiple (LCM).
6. Taking the square root.

Rationale:

In the first grade in the U.S., we probably all learned the alphabet by singing the "ABC" song. Nepali students learn math operations based on songs and drills. When you ask a student for an answer to a problem like six times six, be prepared for a song and a wait as the student goes through each multiple until they get to the answer. Lower multiples will take less time, of course.

Almost all operations in math involve step-wise procedures called algorithms. In the U.S., we usually incorporate visual aids like borrowing and canceling out as additional steps in order to help avoid errors. Nepali algorithms usually involve keeping up with the steps in your head, which means fewer steps, but more chance for mistakes. This is a basic difference that you should keep in mind.

Activities:

1. Divide into six groups, each group should prepare and present one of the math topics to the large group.

TACTILE TEACHING METHOD, MATH

Goals:

After this session, you should be able to:

1. Describe the tactile, numerical, and application methods (TNA) for teaching math.
2. Develop a list of ways that different math topics could be taught using a tactile approach.
3. Use the tactile method in micro-teaching.

Rationale:

Theories of childhood development suggest that teaching should proceed from the concrete to the abstract. In your classes, your students will probably be diverse, some will be ready for more abstract presentation forms (words, symbols), but many will best understand and respond to concrete initial presentation methods.

For example, use stones to show subtraction. From there, use pictures of stones on the chalkboard (pictures are more abstract than stones, but more concrete than words). Use the numerical method next; it is the fully abstracted form with symbols only. If you keep the same procedures across all three presentations (tactile, visual, numerical), most of your students should have an internal basis for understanding the operation, process, or concept.

Words often tend to be memorized but not applied to everyday life. Application (TNA) is critical in helping your students generalize to their own real lives. This last step is the hardest of all but probably the most important.

Activities:

1. Introduce TNA.
2. Demonstrate tactile activities.
3. Generate tactile activities in small groups and present to the large group.

Preparation:

1. Read NEPALI MATH METHODS, TECH pp. 72-79.

NUMERICAL TEACHING METHODS

Goals:

After this session, you should be able to:

1. Relate the tactile method to the numerical.
2. Teach a previous tactile lesson using the numerical method.
3. List some general teaching tips (use of blackboard, etc.) and practice these in micro-teaching.

Rationale:

The numerical method is the most used method in Nepal. It tends to be powerful but uninteresting to watch. The better students tend to benefit most from this method. Most important, the numerical method is at the same level of abstraction and verbalization as the examinations. This method then will be the most effective for near transfer, meaning success on the examinations.

Unless most of your students are at this abstract level, numerical lessons should be preceded by or should accompany a tactile or visual demonstration, to give your students the internalized structures to manipulate.

Activities:

1. Discuss some general teaching techniques (blackboard, organization,...)
2. Explain the numerical method, with examples and a demonstration of the right and wrong way to go from T to N.
3. Discuss tactile and numerical methods, develop principles.
4. Work in pairs to develop numerical lessons from your previous tactile lesson.
5. Share ideas.

Preparation:

1. (Optional) Read USE OF THE BLACKBOARD, TECH p. 80.

Notes:

Use numerical methods in a micro-teaching lesson.

THE APPLICATION METHOD

Goals:

After this session, you should be able to:

1. Relate the application method to the tactile and numerical methods.
2. Discuss the importance of math application to village life.

Rationale:

Math along with English are considered to be the hardest subjects. If teachers do not confine their subject to the classroom, the students may learn something that can help them to be better farmers, shop keepers, and/or informed citizens. Few will pass the examination, but everyone will need some of these skills and information.

Activities:

1. Define the application method.
2. Brainstorm a list of math application activities.
3. Discuss this list in terms of practicality, what works.
4. In small groups, write math word problems based on village level application, share these with the large group.
5. Develop these ideas to use for micro-teaching.

Preparation:

1. (Optional) Reread NEPALI MATH METHODS, TECH pp. 72-79.

Notes:

Use the application method in micro-teaching.

WHAT ARE SCIENCE PROCESSES

Goals:

After this session, you should be able to:

1. Describe science and relate it to this cultural generally.
2. Explain some of the general difficulties of teaching science.
3. Begin to use science process skills in your lessons.

Rationale:

Science is a specific way of looking at the world. Science is both product (content, information) and process (methods, approaches). Your students will have difficulty assimilating scientific thinking processes, because the village environment and the culture generally do not provide the multiple sensory stimuli believed to be necessary for developing this type of abstract reasoning. Also, the examination tends to focus on science product rather than science process. Memorizing content can get students through the tests without the necessity of "scientific thinking."

Occasionally involve students in activities that emphasize science process in order to promote abstract scientific thought.

Activities:

1. Describe a typical Nepali science lesson, discuss.
2. List and define the eleven science processes (could be a peer taught lesson).
3. Develop some specific classroom activities based upon the processes of science, relate these to some science content.
4. Share ideas with the group.

Preparation:

1. Read THE ASSUMPTIONS OF SCIENCE, TECH pp. 81-84.
2. Read THE PROCESSES OF SCIENCE, TECH p. 85.

Note:

Use a process in micro-teaching.

VISUALS AND SCIENCE CONCEPTS

Goals:

After this session, you should be able to:

1. Describe the relationship between meaningful learning and use of visuals in teaching.
2. Give visual examples of science concepts.
3. Make visuals with available materials.

Rationale:

Science teaching involves the use of many new words. For example, in a college introductory biology course there are more new vocabulary words than in an introduction to foreign language course. The terms used in science sometimes represent concrete touchable things, but more often, the terms are labels for processes, systems, and interactions that are not concrete or readily observable. If you incorporate ways to "picture" or visualize these terms, you will make science concepts more meaningful for your students. Remember that pictures (and real objects) are less abstract than words.

Activities:

1. Discuss the importance of including visuals (and hands-on) in your teaching.
2. Six small groups should be assigned a different visualization technique. Each should make a visual of a science concept. Possibilities arranged generally from concrete to abstract: 2-d and 3-d drawing which include many details both relevant and irrelevant, a time series drawing which is like a cartoon with one panel following the next, a diagram which is like an abstract line drawing and includes only relevant portions of the concept, a cross-section which shows the internal structure, a flow chart which begins to be mostly words connected with arrows with a few associated images, a chart which is bar or line graph of visually showing numbers. All may use labels.
3. Each group shares their visual and makes comments.
4. Discuss and brainstorm a list of available materials for making visuals. (include blackboard)

Preparation:

1. (Optional) Review DEVELOPMENTAL THEORIES, TECH pp. 39-41.

Materials:

Provide some local materials to make materials if these are available.

Note:

Use a visual in micro-teaching.

CONCEPT (CONTENT) ATTAINMENT AND SCIENCE TEACHING METHODS

Goals:

After this session, you should be able to:

1. Describe the Nepali method of teaching science.
2. List several teaching methods that could work well with Nepali students.
3. List several methods that you feel you could do best.

Rationale:

Any subject may be learned meaningfully or by rote. In general, for a concept to be meaningful, it must be connected or related to the learners past or present internal experiences. Teaching methods can be arranged on a continuum that has teacher dominance of the lesson at one pole and student dominance of the lesson at the other pole. Pedagogy (teaching children) usually involves teacher dominated activities while andragogy (teaching adults) usually involves student dominated activities. This is logical since adults have many more internal experiences and so if given control of their learning, they will choose meaningful learning activities. Children have fewer internalized abstract experiences, and so learning activities must be constructed in a way that will build from sense experience to abstraction.

In math, we suggested using TNA (tactile, numerical, application) in order to build student internal structures from concrete to abstract. In science, we suggest using PVC (processes, visualization, concept attainment) with the same purpose in mind.

Activities:

1. Describe and discuss briefly the Nepali science teaching method, consider strengths and weaknesses, and also how processes and visualization (P,V) could be incorporated into this lesson format.
2. Discuss the teaching methods listed on newsprint.
3. In small groups, decide which five from the list would be most applicable in Nepal, give reasons.
4. Share ideas with the large group.
5. Consider and discuss personal choices about a particular method.

Preparation:

1. Read DIFFERENT INSTRUCTIONAL METHODS, TECH pp. 86-94.

Note:

Reteach a lesson using a different method in micro-teaching.

SCAVENGER HUNT

Goals:

After this session, you should be able to:

1. List locally available materials that can be used for science experiments and demonstrations.
2. Construct and use a piece of equipment to teach a science lesson to Nepali students.

Rationale:

This session is a complement to the sessions on science processes, visualization, and concept attainment (PVC). Well stocked labs are not yet available in Nepali schools. Experiments and demonstrations are an important part of science, and must be done in regular classrooms with materials that you carry into the class as the period begins. Though many familiar materials are not available, a surprising amount of things that can be used for experiments are locally available.

When you do experiments, present a standard report format for your students to use. A generic format used by a Nepal PCV is provided as a handout.

Activities:

1. Discuss the use of experiments and demonstrations.
2. Brainstorm types and sources of possible materials.
3. Begin to develop an experiment to use during micro-teaching.
4. Share your ideas with the group.

Preparation:

1. Read DEMONSTRATIONS AND EXPERIMENTS, TECH pp. 95,96.

QUESTIONING TECHNIQUES

Goals:

After this session, you should be able to:

1. State several question types and give examples of each (eg. convergent, divergent, low-order, higher-order, prompting...)
2. Use various techniques of questioning in a lesson.
3. Use wait time.

Rationale:

Research and theory on hemisphericity of the brain suggests that the mostly sub-conscious right brain "experiences" and the mostly conscious left brain "explains". In literate cultures, it seems that the left brain is driven to explain personal actions and external events in terms of attribution or cause-effect terms. Questioning drives explanations, so there seems to be a built-in need to know "WHY?". In a traditional, oral society, experiences are aggregated or grouped together by association, this quest for "why" is less pervasive, things just are and always will be.

Questioning, then, becomes an important way to develop analytical thinking, increase abstraction, and so promote "scientific" world views. In this case, creating the "habit" of asking questions is as important as the answers generated by the students.

Activities:

1. Discuss different types of questions, develop examples of each (large group).
2. Trainers and PCVs explain problems and difficulties of using different question types (Nepali language, culture,...)
3. Discuss wait time, why it is necessary, and potential problems with waiting too long. General discussion about experiences of trying to get students to respond to questions in micro-teaching.

Preparation:

1. Read TECHNIQUES OF QUESTIONING, TECH pp. 97,98.

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Job Description
Technical Training Sessions
Technical Readings

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AMOUNT OF STRUCTURE IN TRAINING

by Roy B. Clariana

Technical training sessions early in training tend to be content or theory related. Gradually, the amount of trainer provided structure decreases as sessions become more hands-on. As the training progresses, you should begin to challenge your capabilities by initiating your own and also the group's learning activities.

The sessions are planned this way intentionally based upon the ideas of Abraham Maslow. He developed the concept of a hierarchy of needs which include: 1. at the lowest level, survival needs, 2. safety needs, 3. love needs, 4. ego and esteem needs, and 5. at the highest level, self-actualization.

Maslow states that we must meet the lower needs before we begin to address the higher level needs. If you are seriously concerned about your survival needs, you probably won't be concerned about higher needs like self actualization.

When you first arrive in Nepal, you will have many concerns at the lower level of the hierarchy of needs. You should be concerned about obtaining safe water, safe food, and so on. At this point, the training staff will provide a lot of structure to help you meet these lower needs. This structure will be in the form of simple rules, procedures, and some general concepts.

There is an interesting concept here that you might not have considered before, specifically, structure and rules don't take away freedom but actually provide the canvas or background to have real freedom. Once you know the rules, you can begin to move from the conservative center out to the boundaries set by the rules.

Anyway, as training progresses, you will develop the skills to take care of yourself. At that point, you will automatically begin to work on your love, ego, and esteem needs. There will be plenty of opportunity to attain these during micro-teaching, during post visit, and later in practice teaching. Challenge yourself, the more you try, the more you will grow. Later in training, begin to structure your own activities by setting goals and going for it. This could involve approaching language teachers or technical trainers for additional lessons, cooking a

meal for the whole group, helping to plan the mini-trek, or working on a committee to write a short curriculum guide with simple science activities that the other trainees could use (to name just a few).

So technical training progresses from high trainer structure to high learner structure. Graphically:

THE PCV AND DEVELOPMENT

by Roy B. Clariana

Here are some ideas about agricultural development specifically, that applies to development generally, as an introduction to your development role.

Giving people things like tractors that are used for one season and then sit to rust because no one can or will repair them (example from El Naranjo), or curriculum materials, texts, and supplies that sit in the school store room collecting dust for years after the PCV teacher returns to the U.S. are examples of what Roland Bunch calls "the paternalism of the give away" and is not development. He describes a second form of paternalism that is also not development, but that may apply directly to you as a teacher in Nepal. Then he gives some ideas about what development should be.

Excerpts from Two Ears of Corn by Roland Bunch. Published by World Neighbors, Oklahoma City, 1982, pp.21-23,72,194.

The Paternalist

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Two top-not to help the community of
Yanamilla raise roving the irrigation
system, and pl e how to raise production
from twenty-fiv hs after they had left
Yanamilla, pro ters a day.

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as does its better kr ple (eg. classroom
teaching) seldom a(pandoned development
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animal raising and r se of abandoned
give-away machine s to town, do the
accounting, make d together, or
troubleshoot, the w aways end.

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Secondly, doing iency and inadequacy.
The "Please, won't ally obsequious
"Please, won't you (ınd dependency are the
same. The people ı personnel to run their
cooperative as they r. As a result,
neither tractor nor tl f accomplishment or
self-worth.

"Obviously, thouç ple. Were the people
able and willing to s done so ages ago.
How can we who ar activities we should do,
and those we shoul ose things that the
people cannot, or ir

It is, of course, e ing out what the
people (colleagues, some trial and
error, but in the end is part of the art of
(development).

It should be emp can do for themselves
is paternalistic. Eve so on) can be
paternalistic in this v complaining
bitterly about having
firewood on their he ox carts stood idle.
After much discussi he women were not
using the carts, and e villagers a week long
"sensitization" cours urred to the

(program) that the vi n and work out a solution themselves.

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If we are to avoid d also the dependency on you , our only course of action is to motivate rder and less outwardly rewarding ues and counterparts) who sc t, and non-innovative beco ient process? Somehow, the peopl

Enthusiasm - The Dr

Enthusiasm as th y other names, too: determination drive c of one's work. It is the desire or willin o reach a goal. It is the willingness tc study, make decisions, cooperate mon end. Unlike its usual connotation, th ven long-term, unemotional forms of

When enthusiasm eds, no one shows up for meetings, cattl n between neighbors becomes i nable to convince farmers of anything. wo full days to attend classes, (techi cher) to another, and many former problem h in India spent six months of his own sa n miles in one day for the program while

Instilling enthusias plausible way of avoiding paternalism. e self-help program - the driving development.

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The question, the ...ked years ago: "How to bestow on (projec ...tnership, that sense of purpose, that eag ...designed so that enthusiasm will grov flourish? Each one ...ulating enthusiasm:

1) The program mu

2) Coworkers must ...ıe problems.

3) The people (invo ...roject personnel

(a) know enough to ...ıe people's benefit.

4) The people shou ...ınd its successes by being involved in pr

5) They must partic ...ccess is achieved, they will feel a sens ...enge must be simple enough at first that t ...lly become increasingly comple ...ı problems and can feel an increasing s

The people's ent

1. the freedom to s
2. the freedom to b
3. the opportunity t ...support and companionship,
4. the opportunity t ...erest, especially solutions to other fel
5. the recognition, ç ...ı trainees), program leaders, an

Success - The Sour

None of the abov ...ıusiasm in the absence of one cruc ...Ve define a recognizable succes ...ıat are both readily observable and desi ...stem.

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Recognizable suc ons to stimulate
enthusiasm. For inst without achieving
recognizable succes: or them to solve the
problem. (People) sh evolence will
change their minds o id achieved successes
of benefit to them. Ic ever succeed
will produce not enth intment. When
long-term efforts lea support tend to
degenerate into mut nition, gratitude,
and positive feedbac videly perceived as
beneficial. In short, there will be no
enthusiasm (includin

Very simply, we h s after a program
has terminated, noth e harm. For it
will be even more dif out innovation in
the future if their first

The chances of o od if we have worked
with a few appropria nswer a felt need,
if they have brought s, if we have
emphasized those fe nass has been reached
in many of the area's le) to increase their
constructive particip ver and learned
to run it well.

Nevertheless, we t have as our goal the
multiplication of our cross a larger and
larger area for years

(Our coworkers, take the forefront in
this battle (against e le can solve their
own problems. It str firms our trust and
confidence in their a

How do we train work...?

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How do we promote mu

First we must ask, "\ part) need in order to be a good lead

1) Motivation to help ot haracteristic looked for in selecting a ling process must constantly reinforc

2) Enthusiasm. Just a: opment, it is also a driving force behind a inspire enthusiasm in others.)

3) Technical knowledg cific appropriate innovations ier area. He or she must also be able t vations and know how to try them out.

4) Conviction. The mu f success with the (technique), becom she is teaching is valuable.

5) Prestige. Only if villa or her knowledge will they con ner reasons.

6) Teaching ability. Kn ble to teach it."

In dealings with your utes and to ascribe these attributes

How teaching can be development
by Roy B. Clariana

Teaching is doing for people, and viewed in the short term, would be paternalistic since within your school it does not achieve permanence and it tends to create dependency. For example, when a PCV is leaving country after two years, the headmaster and the students often ask "Please Miss (or sir), stay and teach us, no one can teach like you". In the short term, this is paternalism; except that we are dealing with people, not pastures. The developmental impact of teaching occurs in the second generation, when your students grow up to become teachers. Because of you, they now look at the world a little differently than they otherwise would.

"There was a child went forth everyday
And the first object he look'd upon,
that object he became,
And that object became part of him for the
day or a certain period of the day,
or for many years or stretching cycles
of years."

Walt Whitman in Leaves of Grass

ESCHOOL

Excerpts from A Class Full of Gods and Goddesses by Ruth Higbie, pp. 31-36.

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The school building l py lean-to such as some towns had. Ou you stepped into a classroom. The floors /, and when the shutters were closed, nc ıd produced ponds in the middle of some cl agains walls.

They sat on benches ide to use for desks. Girls always sat on the ı There were always more boys than ; girls, leaving as big a space as possible. ɔwd onto a bench was amazing. They sat hts.

There was a small rc ; and magazines on flimsy shelves; but nc ' doubled as a ping -pong room, as UN ong set. A game on the dirt floor raised thick ; in the room.

Chapter 6 A Class Full

Classes did finally st on which I so dreaded. As I entered t ful of small Nepalis jumped to their ·st high school class, and they looked f ɛd enough to let me smile, and the room ripp a." They sat.

A hundred and thirty e were slanted, reflecting the mixed orig ırn mountains. I had to gulp twice befor Higbie ho," I said, writing it on the bla Higbie," I

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said, and "Masus Ha or them and I was
seldom called by it. I imes Root Sir. The
English th is an impo ouldn't answer to
was the grunt "Eh," w

As for their name: To my roll call a
heavenly chorus res
Laxmi, Indra, Gunga ılignant demon Hitler.
I jumped when I saw ıe got there.

Now a science te: word frequently and
with fervor - why. Th ə north star seems
to stand still. Why?] coldest month. Why
not? The word for wi g it in hope,
exasperation, and de om the back of the
room. Sometimes ev ach other for no
reason I could see. I ə teachers spoke. He
was not a special frie thing your best
friend won't tell you. ten say khina."
"And what does that ent." If Shiva could
have danced his dan ı end right then I
would have rejoiced.

My classes would ly odd accent, the
strange ideas I was t r concepts and
methods - all were di was to
memorize. I was the ə first classes of
mine must have beer ıffered over every
mistake.

The mistakes the re was the note
signed Your Lovely S ə Book which began
in print:

He does, dc
He can, car

He is, isn't he?

And continued in his writing:

He swims, swim't he?

He jumps, jump'

He runs, run't he

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As my own language ir ; drew together, but then I began to see th ren and the type of education His Majesty's them. It was only in the last few years since g rule of the Rana Prime Ministers in 1 he mothers or fathers of these childre ı in Banepa claimed to be literate. Ha a prestigious activity, generally useful ir t teaching you how to perform it. It ce ous festivals which occurred every few e of vital family and cultural importance.

And the educational sy British schools of India had been the mod ıe schools of England of an earlier day. ems my mother had memorized before the th the tradition of a guru whose v y sat on the floor around him.

The textbooks. Oh, the oft paper covers. Every author belie in the better. His prestige would soar if h ology text contained hundreds of tern w. Yet these ninth and tenth graders, ne supposed to remember epiblems, perist ıercogamy, theistogamy, and a hundre vhich a government job of further e

The texts were full of a l ften

indistinguishable. The ank of tl insect.
What was a child who knew litt Nepali,
the diagrams supposedly in En corrected
the texts would the examiner ki text?
Was I dooming my pupils to fai

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There were erudite words a t were in
none of my five dictionaries, an dmaster
could understand or translate fc

The courses had no logical c e a body
of facts and not trying to make : der they
are learned. Under the old gun levels of
instruction one didn't even have

At least my classes could re ses chanted
their lessons; teachers in the of The sixth
grade could read with a speed a e out the
Devonagri symbols. They didn' d English
sign does. For my children, the But that
was all. When I asked question y stared at
me.

They read:

> Our sun is one of the star
> but it is the closest of all s
> That is why it looks much
> than the other stars.

"Shiva Prasad," I'd ask, "Wha I would
stand. Agonized, he would look d back at
him.

"What did the book say, Shiv. "
"The North Star?"
"No, another one."

"I don't know the name of a
"What did you just read in t
Silence. "Who does know?

After more minutes of ques
When they had gotten used to
was different. There were alw
had the answer and tried to re:
impossible. From shyness, cor

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he sun."
the pattern
always
ners was
nute.

VOLUNTEERING IS CHOOSING

text not available

ONE DAY AT AJAD HIGH SCHOOL

Excerpts from A Class Full of Gods and Goddesses by Ruth Higbie, pp. 40-46.

One July morning recorded in my notes gives a picture of my school day:

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Before five o'clock the iito net, descend
three flights of stairs, unb ht to my
latrine. On the way back I ack one) so
Om Bahadur, my present ıy bath he goes
out to get goat meat for di a certain
street corner where the bı ill squat with
his scales to weigh the mı ıile, I sit on the
cushion by the front windc

Om Bahadur brings mı sh-made potato
chips, and a banana man ırge brass basin
full of hot water to my "ba: :tween bath and
breakfast I put my lessons

At a quarter to ten I lea ı cardboard
box for an experiment, a ı , and keys for
the pitiful library and labor ɔly of leaves,
monocot and dicot, bamb: ɛm with the rest
of my equipment in my jhc ear and watch
me. I tell them the leaves ɔh some high
ones. When I go on, one .e instrument,
walks with me and to my :

This day I don't have a eachers have
arrived and are sitting in tl ıds folded
together. No one seems t: ne for classes. I
had brought a couple of T ake them and start
intoning the captions und: achers have a
few days' beard but mana ɔrse on a white

skin? Or maybe I can't re
the office for a table on wh
a bee fertilizes a flower. F
of the flower with the bee
idea of what a cross-secti
diagrams Westerners take
who have never seen thei
familiarity with them.

I go back to
is showing how
ving all parts
ng to get the
he maps and
ple to people
mes from long

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The piun comes out ar
watch it is ten minutes late
game. Rajendra keeps on
the seventh grade classro
word is called out that the
chalk, etc., but there is no
girls and lay them on the c
are for this class, and I as
will be room on the narrov

ice that by my
heir chess
slowly toward
of me as the
, umbrella,
s of three little
o sprout in it,
s so there

It is to show how light a
two baffles that will force t
will have to take it to a hig
classroom are closed, no
someone would destroy th
walls, no visual aids. I do
more than I can see why I
come while I am out, or le
would infallibly be taken a
all day by the succeeding
them its progress.

n a box with
corners. I
of our
left there
diagrams on the
rn down, any
nd who might
is that it
it to be watched
h day to show

In their notebooks they
the leaves I had picked or
parallel-veined bamboo le
hibiscus leaf with branchir

en I bring out
child a
n ageratum or
leaf as

carefully as you can. Th aw the other kind of leaf."

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Soon, too soon, the c Miss, is mine right?" For child after ch ook more closely at the veins. "Lo vay the veins go, and draw it again."

When the bell rang I v ıching it. Ram Bhakta had told me there ; hadn't told me I'd been relieved of the seve da had been given it to teach while I was awa ɔrced him to begin on time by innocer ppeared. Today he was there with unpara appened.

I went back to the offi ıd the bee to take to my next period, tenth ; It was locked, when I went to it, with a t t so this wouldn't happen was goı given two to Ram Bhakta, the HM.) Now th went to Ram Bhakta for the key. He c on an errand down to Banepa.

Four girls were waitin e a lot to learn today. We will sit on the

One boy, Ratna Lall, : Bahadur came up and said, "We can have ' hool today so the room is empty." Ram Ka agrams of the fertilization of the flower ; ; it is beautiful, but do they understand v

We had been studyin at often appeared on the SLC ex must get to the stigma of the flower or it

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"Bimala Devi," I said. gram just how
the bee is putting pollen c ›od, but could
not bring herself to walk t ır came up
and explained the whole But did Bimala
Devi understand?

I gave them a short wı)n the last quiz
no one answered anythin at me. This time
most of them answer. Ev

That was the morning. not wander out
to find a bush, the way th o Ram Bhakta
about their plight. So I st lunch. Over
my head I held a big blac ed an umbrella,
either for rain or the fierce :all behind
me. Siddi Bahadur was r a poem he wants
to read to me. He reads i he sonorous
double repetitions. Not a ; in Newari, so I
have to ask what it is abo ahadur
earnestly says, "It is only t look at girls
in class. If he walks up th ıother boy. But
his poem is about a girl.

I hurried home for lunc ;es. I knew
that when I finished my la eserted school.
All the other classes and ne piun alone
would be waiting to see n lock up, close
the shutters, and go hom ıe next day it
would begin at ten when I ne he,too, would
begin his classes on time ol day promptly.
But not for long.

Now the interesting pa my heart out
trying, while the Nepali te g as our

culture dictated - I w ,at whatever job
was worth doing wa eling of obligation to
the few students wh t least) interest and
even joy in the work

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The Nepalis, too ctilious in signing
the time book (whic our - no matter
what time they reall manche
importance and disc ound feeling that
the less you did the or exposing yourself to
the possibility of ma roach of jobholders
all over the East sin

And, to do them t classes in morning
school before ours l make ends meet. They
were paid only $12 and supportive
families were hard p

But the unhurrie pay. Almost any
home or religious ac ly, took precedence
over school. And if ahadur was my
student as well as n t I said, "But Om
Bahadur, you didn't ill you do now?"
"I'll go to school
"If my sons had not have paid to send
them back to schoo
"My father will pa
"How long will he eing quite sure that
Om Bahadur would

With his engagin closed his Oriental
eyes, Om Bahadur

A TYPICAL DAY AT CHANDU HIGH - Jumla

by Marty Lesesne N/80

time	activity
10:00 -	2% of the students present to sing national geet
10:15 -	First bell: English Class IV
10:30 -	The other 98% of the students, who came late and subsequently had to move stones from one side of the school yard to the other, come to class. Mandatory roll check, garnu parchha.
10:40 -	Take books out of bags, fill pens with ink, open books.
10:45 -	Attempt to get all students seated and quiet enough to make myself heard.
10:50 -	Attempt to get all students seated and quiet enough to make myself heard.
11:00 -	Second bell: English Class V. Answer these questions: 1. Sir, America Nepal how much rupees cost? 2. You watch give me? 3. What is cheek? 4. You rice eating? 5. Sir, yo ke ho?
11:10 -	Take books out of bags, fill pens with ink, open books.
11:15 -	Find correct page.
11:20 -	Try to find one student who can manage, "Look at this picture."
11:25 -	Attempt to restore order and lower decibel level in classroom.
11:35 -	Bring out flash cards and defend myself against attacking students: What's this? Who made? Sir, give me. No! No! Sir! Give me, give me!!!
11:40 -	Leave class in a state of uncontrolled bedlam. Go to office for a smoke with other teachers.
11:45 -	Third bell: English Class VI.
11:50 -	Round up students and get them into class.
11:55 -	Attempt to get all the students seated and quiet enough to make myself heard.
12:00 -	Put pocket chart on board and try to keep students from killing each other in their effort to snatch every iota of tape on it.

12:15 - Succeed in achieving absolute silence by introducing a pattern drill.

12:25 - Try to extract response from students, succeed in restoring bedlam.

12:30 - Fourth bell: English VIII. Respond to these questions: 1. Sir, today very cold? 2. Sir, you very bad bay. 3. I house going.

12:35 - Answer these questions: Sir, you marriage? Sir, you watch give me? I out go? Sir, Jean pant how much rupees cost? Sir, you after market going?

12:45 - Take books out of bags, fill pens, open books.

12:50 - Find correct page.

12:55 - Try to find one student who can read.

1:00 - Pull Class IV students out of windows to let light in.

1:05 - Attempt to restore order and lower decibel level in classroom.

1:10 - No students remaining, they all crept out when my back was turned.

1:15 - Tiffin: ma bhagchhu.

BLOOM'S COGNITIVE TAXONOMY

text not available

USEFUL EXPRESSIONS FOR MAKING TESTS

text not available

GENERAL HINTS ON TESTING

by PCV Dwight Holmes and others

The range of student abilities results in a wide curve on tests. In addition, cheating is rampant, even among the best students due to a complex set of reasons. To attempt to clarify and assuage apprehensions about this topic, here are a few suggestions about testing:

1. Test only material taught in class and homework.

2. Use exact testing styles in class that will be used in mid/final tests. Do not allow cheating even on practice tests.

3. Write as much of the directions in Nepali as possible, except where directions are very simple or obvious (fill in the blank, multiple choice). This will cut down on noise during the exam.

4. Group types of questions and required answers together. Give examples wherever possible.

5. If possible, space the students out so that they are not crowded. This may mean giving exams in shifts or even outside. Ask another teacher friend to help supervise (be sure to explain your rules to him/her ahead of time).

6. Seat brighter students in the back.

7. Set standards of discipline before the test starts. Do not bluff. Find out what kind of support the Headmaster and other teachers will give you.

8. Find out if you have to make up exams or if these are sent from the District Center.

9. Two students caught talking during an exam can be given penalty points. There should be no arguing about what they are saying (asking directions,...), and this should be done without making any noise. After 2 points, throw papers away.
10. If the Headmaster is agreeable, 5 or 10 point exams may be broken up into smaller 2 or 1 point exams.

11. Neatness can be demonstrated by posting a good student's exam where everyone can see it.

12. When grading tests, keep notes on common errors which need to be pointed out to the class as a whole.

13. The tests should be gone over immediately after being handed out. If this can't be done, recollect the papers.

14. Try to have the students write the correct answers and then return the tests.

15. For recording, use your own notebook for everything (homework, quizzes, exams) and transfer only what is necessary to the official school ledger.

16. In determining final grades, the teacher's discretionary 10 points can be used for neatness, good behavior, citizenship, class participation, etc...

A WORD ON CHEATING

text not available

a word on cheating (continued)

SOME PCV TEACHING SUGGESTIONS FROM NEPAL/3

Sept. 2, 1965

Introduction

The following are a number of problems connected with the teaching of science ((and other subjects)) in Nepal and their possible solutions. We have tried to list them in the approximate order they would be encountered. A few of the solutions are proposed in hindsight and therefore are untested, but had we had knowledge and experience at the time the problems arose, these solutions might have saved a lot of frustration and led to a better progress. ((Use of double parenthesis indicates a slight change from the original text.))

The PCV teacher and the Headmaster

Failure to get the full understanding and cooperation of the principal or Headmaster will inevitably hinder progress in most endeavors. Problems of discipline will be almost impossible to surmount effectively without his backing.

A PCV would be smart to make a sincere effort at the start to know his headmaster well and become personal friends with him. He should never challenge his authority or dignity, or make him lose face in front of others, especially his staff. It should be made obvious to all that you uphold his position as the focus of you r efforts in connection with the school. He should be given special treatment in all circumstances, even to the extent of inviting him to dinner alone at your residence before you fraternize with the rest of the staff. Remember that your Headmaster will be the key to many of your problems and problem's solutions.

The PCV and the ineffective Headmaster

Possibly your Headmaster will be a "do nothing" administrator, concerned only with collecting his salary and maintaining his position. In this situation, careful scrutiny will be necessary to analyze the general staff situation. There will probably be one person who stands out above the others in a position of de facto leadership. But there is also a good chance that the staff will be divided. In this case, care should be taken not to antagonize either group, no matter how useless they may

seem. This will be difficult and a solution should be carefully thought out over a period of time. A general solution cannot possibly be spelled out here because that will depend on the different circumstances. However, the best results will probably come from a carefully planned effort to unify the staff through cooperative programs where accomplishment can be seen. This must be done in a way that does not undercut the Headmaster. Credit for the efforts should be apportioned on an individual basis, this should not be neglected.

The PCV and the Nepali teachers

Failure to obtain a proper rapport with the other teachers will probably not hinder your own class efforts, but progress in attaining a (("good working relationship")) will be greatly thwarted.

A PCV teacher should not jump headlong into the teaching of ((their subjects)), instituting reforms and special projects, without fully consulting the other ((teachers involved)) and enlisting their support. It might take awhile to get him to think along the same lines, but your activity will be of diminished over-all effect if you do not convince him of the soundness of your position. Try not to act until you get some suggestions from him which you can incorporate into your plans and point to him as the author. Simple acquiescence in your plans is not enough.

The other teacher(s) should be encouraged to accept a reasonable share of the physical efforts (projects) even if the lack of quality on his part (in your opinion) is a detriment to the general progress or effect. If this is not done, you will most likely wind-up attempting all projects on your own.

Never embarrass a fellow teacher or make him "lose face" by negating something that he has taught, or criticizing something that he has done in front of other staff or students. Talk to him in private along the lines that he might have experienced a minor oversight which you would like to clarify for your own understanding. Nepali teachers are very sensitive about what other people think of them (especially Westerners) whether they appear so outwardly or not, and a seemingly healthy relationship can be destroyed by a casual remark. You should try to feel what your fellow teachers feel and act accordingly.

Try not to let your own vivacious (or not so vivacious) personality overshadow your coworkers normal relationship with the students. If this is unavoidable, work him into a two-man act with you as the apparent "fall-guy". Try to make the students want to see the two of you together. If you are sensitive and convincing enough, you might be able to build him into a much better and forceful teacher by directing credit for successful efforts, even if you think he doesn't deserve such credit at first.

PCV teacher and students

If the PCV does not make a serious effort at first to understand and communicate with the individual students, especially in class, he will not be able to comprehend the exact nature of his classroom problems.

The PCV should not adopt the attitude that these are strangers into whose personalities only a full knowledge of the Nepali language will enable some insight. These young students are the same as any young people. When you get to know them, you will recognize the conscientious, the loafers, the timid, the outgoing, the smart, the slow, the lazy, the leaders, and the followers. They are basically the same kinds of students that you knew in your own school days. But don't be too hasty to judge; the culture will make this insight deceiving in some respects. Sometimes a student will appear to be a wise-guy when he is simply making an effort to adopt Western mannerisms. Often he will laugh when you think something is hardly funny. Here again, as in many other cases, the volunteer must make an effort to understand and empathize.

Be prepared to tax your reserve of patience in the beginning. Talk to the individual students whenever the occasion arises, even when you are in the middle of a good novel. Be willing to spend hours of your spare time discussing aspects of class material which have apparently presented a problem to the student. This will be a great test of your patience for the first month or so. Then after you get to know the individuals, you can cut down on this procession simply be discerning who is serious and conscientious and who is bluffing or "brown-nosing". On the other hand, if you do not make this effort at the beginning you will discourage the students in general,

and it will take a much longer time with the possibility of complete failure - to realize whether or not you are getting through to them.

The PCV teacher and the classroom

Creating to casual an atmosphere in your classes can result in irreparable damage to your whole program.

Your students will most likely remain quiet and composed for the first several classes while they "size you up". Take advantage of this introductory period to impress upon them the standard desired. Naturally, you will have to have your material well prepared. Completely digest all aspects of the few facts you will present. Make sure each student participates. Don't accept an "aundaina" answer even though getting participation may be like pulling teeth. Try not to have extended periods of silence while waiting for an answer from a student. Rephrase the question and, if necessary, simplify it until a one word answer will be possible. If the student completely balks, casually change the subject or develop the subject in your own words so that the student can at least agree.

On the other hand, don't make your classes too formal or strict. In the first couple of weeks of introduction, don't be afraid to smile, but make it understood that you don't intend to veer from the subject matter.

Again, in the first couple of weeks or so, go slowly. It is more important to create the right attitude toward learning than to cover a large amount of material. The students will not be used to jumping into a heavy schedule of learning. Also, don't emphasize your over-all plan for the school year. The students are not used to emphasis on organization or programs. They will not react as US students would. More likely they will form a mental block about the tremendous load being imposed on them and turn their efforts to slowing you down.

Homework is a problem that will depend upon the school. As a general rule don't assign the students even a normal amount of homework by U.S. standards until you know the normal practices of the school and the capacities of the individuals. It is in matters such as homework that a teacher can easily "lose face". At the beginning,

don't take chances lest you be confronted by a situation where you will have to back down under pressure from the students. After you understand the situation, you can develop your attempts along these lines with more assurances of success and less chance of weakening your foundation. On the other hand, the need for regular homework should be established immediately, even on the simplest scale. If you take a casual attitude towards it, you will wind-up with griping and groaning about every assignment.

Consistent review at the beginning of each class will instill in the students (at least some) the necessity of retaining the material from day to day, and not just before a test. This is also a very valuable method of checking the students' comprehension. Whereas in the class a student might parrot back words which are immediately familiar, the next day he will find it more difficult unless he actually understands what he was taught the day before. Weekly tests are unfamiliar to the Nepali student, yet they can be of great value and should be encouraged. The institution of such a system will also acquaint the student with your methods of teaching. He will realize that it is a little more strict and that more is expected of him. The Nepali student has a healthy attitude towards testing (eg. SLC) and will not balk at them. As a matter of fact, the majority of the students will like the idea and be eager to find out what their grade was and what their general average is.

The PCV teacher and general problems of discipline

If the PCV does not control his class from the beginning, the problems will snowball and make his efforts impossible.

Nepali students (with a few exceptions) are not familiar with our specific concept of classroom discipline. It is imperative, however, that you introduce such measures in your own classes from the start for your own sake (to keep from going mad). Problems of discipline are different in one way from any of the other problems we have touched on until know. Whereas, with all the other problems, we have suggested going slowly in finding a proper solution. Classroom discipline must be established immediately the very first day and followed strictly there after.

One of the most bothersome problems is talking during class. The larger the class

the greater will be the unidentifiable hum. Again, the larger the class the more difficult it will be to bring an end to it. In the beginning you will simply have to stop where you are and wait until you get complete silence. The process might have to be repeated several times in a single class. But don't worry about wasting valuable time. It is important for your ultimate progress to sacrifice a little classroom time in order to create an orderly learning environment. After a while you will become aware that it is usually a few individuals who start the talking. Once you identify them, you might have a meeting with this group alone or, preferably, with the Headmaster present. There after when the occasion presents itself, make the particular student leave the class. If this happens more than twice with the same student, make him get a note from the Headmaster before he can return to class (be sure the HM is aware in advance of and concurs with your procedure). ((The consequences are typically a severe beating.))

It is important to note here that your efforts along these lines should be kept within the limit of "cool-headedness" and they should never appear to be the result of anger or frustration. Never allow the student to think that it is a personal thing between you and him. If and specific disciplinary measures must be enforced regarding a particular student, leave it up to the HM, but be sure to follow-up.

If the problem of discipline persists, talk to the HM diplomatically and try to make him understand how important this matter is to you. Avoid a situation where you appear to be giving your HM an "ultimatum".

Tardiness is a similar problem. If it persists more than twice with the same student, make him get a note from the HM before returning to class. This should be automatic after the second tardiness. (Speak with the HM ahead of time.) This solution can present another problem. In some schools the students will think nothing of missing classes. The student who is late might simply skip the class rather than get a note.

A striking problem in the Nepali educational system is cheating. Here the PCV ((can do much)). The average Nepali teacher ((ca.1965)) has not yet come around to effective efforts to deal with this problem, possibly because his status as a teacher is to unstable to allow him to crusade against cheating in an individual capacity.

At the beginning it should be emphasized to the student that cheating, no matter how simple the offense, will not be tolerated. On the first occasion, the teacher should dramatically rip up the student's exam and report it to the HM. The student should not be allowed any room for misunderstanding in this area and the HM's support should be firmly solicited. Again, if the teacher adopts a plan of weekly quizzes, the point will be put home quickly and before the students get a chance to damage himself seriously (eg. during a terminal exam). Actually, if the PCV is conscientious about cheating from the start, he will have little trouble enforcing the principle as time goes by...

A few general "Don'ts"

Don't ((develop the idea during training that teaching)) is just one great series of problems. There are problems and there are solutions. If one makes a conscientious effort at the beginning to recognize these problems and apply some solutions, you will enjoy teaching ... in Nepal very much.

Don't come to Nepal in a hurry. Try to adjust to the fact that teaching, as well as all aspects of life, will be much slower.

Don't come to Nepal with the idea that you are going to convert the Nepali system to the American system. There are many aspects of the Nepali system that are better than our own system under the circumstances, and other aspects or institutions that could not be changed even if they are not satisfactory, in your opinion.

Don't come to Nepal thinking that because it is classified as an under-developed country, that the students' minds are underdeveloped. You will inevitably find some excellent students who will present a real challenge to your ((intellectual)) ability.

Don't come to Nepal with our "good old American" straight forward attitude towards instituting change. The greatest accomplishments you will make will be made subtly.

Do come to Nepal to enjoy teaching.

Nepali Educational Time Line

6th - 7th Century AD - Religious education, especially Buddhist, flourishes.

13th Century - Hari Singha Dev rules Kathmandu valley, strong Hindu influence.

14th Century - Jayasthi Malla (1382) reorganizes political, economic, and social systems on patterns given by Hindu codes. Note: restriction on Untouchables.

1480 - Yaksha Malla divides the valley into three kingdoms, Kathmandu, Patan, Bhadgaon. Little peace, education declines.

16th Century - Christian missionaries arrive and translate Hindu Epics, some destroy thousands of manuscripts, lose influence.

1768 - Prithvi Narayan Shah conquers Kathmandu valley. Distrust of religious education, education dormant, missionaries expelled.

1846 - Jung Bahadur Rana starts dynasty of hereditary Prime Ministers. Keeps out foreign ideas, suppresses education.

1850's - Rana children have private tutors, then their own school.

1870's - Sanskrit schools opened.

1901 - Prime Minister Dev Shumshere Rana introduces new system of education. One teacher for fifty children, free texts. He is exiled after four months by kinsman, reforms are lost.

1900's - Several families bring in private tutors for children, all in the Terai. Significant factor in raising political consciousness.

1914-1918 - Gurkhas fight for Great Britain in WW I. British ask that soldiers receive education in Nepal before induction. First mass educated and traveled group of Nepalis, become a factor in the growing unrest in Nepal.

1918 - Tri-Chandra college started (the big clock tower) by a very conservative Rana.

1930's - Many "on-paper" reforms (eg. SLC).

1939 - Prachanda Gorkha, an organization of young, well traveled soldiers, is formed to overthrow the government.

1947 - India gains independence, gives help to Nepali Congress.

1948 - Prime Minister Shumshere suspends civil liberties, clamps down on education and "outside" ideas.

1951 - Revolution, King Tribhuvan triumphs, education is revitalized.

1950's - The administrative machinery for mass Education is set up. All effort is on quantity, no quality. The British Indian model is copied, many ex-Gurkhas are teachers. A Normal School for teacher training, technical, and vocational schools are set up. Nepali students expected to learn the same material as British students.

1960's - King Mahendra reorganizes educational system. Primary (1-5), secondary (6-8), and High School (9,10). Multi-purpose schools in several cities, many teacher training programs, schools get some government aid. A National Curriculum enters full implementation, partially successful. Peace Corps invited to teach English, Math, and science.

1970's - New Education Plan adopted in 1971 changed the 5-3-2 to a 3-4-3 system. Government covered costs of teachers salary on a sliding % scale. Incentives were given for teachers moving to other districts, especially isolated ones. The national goal was to have 10% of school enrollment be women. The National literacy rate surpasses 20%. A little educational research and planning is done with the aid of foreigners. Texts for grades 1-3 are supplied by the government. The National SLC pass rate hovers around 30%.

1980's - A further revision of the textbooks for most subjects is being carried out. Primary grades will again be 1-5, lower secondary is 6,7, and secondary 8-10. A new 11,12 grades are proposed. Peace Corps volunteers shift from teaching to teacher training in their second year through PEP, SEDEC, and PTTP programs.

DEVELOPMENTAL THEORIES

Jean Piaget described four levels of childhood development: sensoriomotor, preoperational, concrete operational, formal operational. The following excerpts are descriptions of each stage (The 4MAT System, by Bernice McCarthy, p. 59):

Sensoriomotor (birth)

No separation of action from perception. Knowledge is tied to sensory input or motor action. No separation of thinking from acting.

Preoperational (1-2 years old)

Assimilation of "things out there", but consistently in terms of personal experiences; preparation for concrete operational intelligence.

Concrete Operational (6-7 years old)

The first stage of operational intelligence. The ability to form stable concepts in systems (classification) but limited to objects the child considers as real or concrete. Increasing ability to focus on what is general and common to all people in experience.

Formal Operational (11-13 years old)

Thinking that allows for many possibilities. The ability to systematize values according to their relative priorities, so that motives appear consistent. Piaget maintained that only at this stage does linguistic development become proper instructional form. Thinking first, then language.

The Developmental Lag in Developing Nations

Piagetian tasks that have been used to collect data in numerous countries indicate that children in these countries tend to lag behind Western children by about 2 to 4 years, and a large percentage never reach Formal Operations. It is believed that environmental stimuli that could impact reasoning are lacking in these countries, for example, children would seldom handle containers for holding liquids or use standard measurements for length, mass, and volume.

Several studies that support this literature have been conducted in Nepal with similar results. Interestingly, it was found that the further children lived from a city (eg.Kathmandu), the further behind they would lag (developmentally).

Another theorist who offers insight into development is Jerome Bruner. His work follows Piaget's rather closely. Bruner describes the following three progressive modes of representation of the world from concrete to abstract:

Enactive

The child's interaction with objects in his/her world (like Sensorimotor).

Iconic

The child's use of symbols, images, and representations; the child is able to recreate a situation and develop imagery.

Symbolic

The child's use of language and symbols (and other abstractions).

Although these modes are presented as separate stages, Bruner does not contend that they are sequential stages. His concepts are based on the following:

1. Growth is:
   a. Characterized by increasing independence from immediate sense stimuli (from concrete to abstract).
   b. Dependent on the internalization of information.

2. Intellectual growth depends on:
   a. The use of symbols (words, abstractions).
   b. The interaction between the student and the environment.
   c. The ability to perceive abstraction, time, and alternate solutions.

3. The teacher:

a. serves as a role model for the student,
b. shows the student how to confront problems, and
c. help the student to learn.

Bruner advocates discovery learning. This means that he feels self-directed active learning is best, though the teacher should establish the environment and the goals of learning. This approach is especially applicable for science process as well as content. Giving students a piece of string and a protractor and asking them to measure the height of a building that is to tall for the string to measure all at once would be an example of a discovery activity, since figuring out how to do it is the important learning.

Implications

These theories guide teachers by indicating what children at different ages can and cannot do. They recommend that young children be taught through concrete, touchable things. Words and concepts used should be demonstrated. Learning should move from concrete to abstract. Older children may be able to work totally with abstractions.

ORALITY AND LITERACY

by Roy B. Clariana

A distinction is currently made between oral cultures and cultures formed primarily through literacy. The difference exists at the most fundamental perceptual and cognitive levels, but manifests itself in outward activities. Of course, all cultures are different from each other, but because of these basic deep perceptual forms, many characteristics are generalizable from one oral culture to another, and from one literate culture to another. Being immersed in either an oral culture or a literate cultural causes these basic perceptual shifts with resulting behavior changes.

Our Western culture grew out of an oral culture about 500 years ago with the advent of the printing press and the subsequent wide accessibility of books. The generations that spanned the change shared characteristics of both, plus creative new ways of perceiving the world. The generations in transition tend to be dynamic and creative. In the same way, a PCV immersed in an oral culture in the village for two years will probably experience this shift in perceptual modes, and so will think and act differently.

This essay will discuss the nature of an oral culture and then contrast this with a literate culture. Finally, suggestions about the possible nature and causes of this perceptual shift and its implications for a PCV will be explored.

Orality

An individual that grows up in an oral culture tends to be highly contextualized. Their cognitive structure is like a seamless web. It is a three dimensional image of their world, and all things (people, actions, objects) are inter-related. Everything is in its specific and proper place. Everything has been learned within context.

Oral modes of teaching are contextualized. Oral methods include stories, myths, epic poems, legends, and proverbs. The time and place when these are told or recited is determined by the time of year, the holiday, or some life transition. These are not primarily entertainment but explanations of who the people are collectively and how

things came to be as they are. These oral methods contain rules for living and characterizations of concepts like duty, honor, fairness, family responsibility, and many others. The information content of these oral modes are contextual because the words are spoken in association with the life activities to which the words refer: words on death when someone dies, words about marriage as the ceremony occurs.

Context and emotional charge

The sensory input of oral man is charged with emotion. Memory traces are laid down with associative emotional responses because they are received within an emotive context and also because oral man is so highly contextual. Virtually every memory will have some associative emotion attached. Subconsciously, actions, objects, people and events are charged with feeling.

Oral man would be exceptionally careful to avoid offending someone, not especially for fear of retribution, but because in a highly contextualized mind, such an offense would create internal dissonance or imbalance in their highly interconnected world. In the same way, causing an oral person to "lose face" would permeate their entire cognitive structure, their whole world would seem to be black.

Literate man would have substantially fewer emotion charged memories. For the literate mind, the bulk of their cognitive structure has been gained out of context. Literate man is taught to read, and then made to sit alone in the corner and read silently: words about birth are read silently in the corner, words about death are read silently in the corner. The words lose their dynamic power (oral) and become instead abstractions of meaning (visual). Oral man knows about, rather than knows many people, places, relationships, and objects. Meanings rather than words are important.

The literate mind is fragmented. The literate mind knows about a lot of things, but most of what is known is without direct context and so also without an associative emotional response. Through learning many disparate ideas outside of context, literate man becomes fragmented and abstracted just like the words that he reads. Perhaps from the oral point of view, literate man is schizophrenic and driven to do "crazy" things.

Ear versus eye

The primary sense organ for oral man is the ear. The ear conforms to oral man's internal context, both surround oral man. Oral communication means inter-action, people speaking together until meaning is clear. So meaning in general, the meaning of life, the meaning of events are internalized as dialogues. The authorities that present these are internalized along with the information they present. At later dates, the oral man will "hear" their teachers within their heads speaking, relating experiences and truths.

The primary sense organ for literate man is the eye rather than the ear. Literate man is dominated by text, and becomes like it. Text is linear, sequential, grammatical (rule bound), and abstract. Literate man tends to think in a linear, sequential way. He tends to reduce complex situations to one simple cause-effect explanation, and tends to remain aloof or abstracted from situations (compared to oral man).

Miscellaneous Contrasts Between Oral and Literate Worlds

The oral world consists of "simple" or homely activities and holidays. These are enjoyable (a subject internal response), the literate world is a world of intensity, excitement, and exotic activities (an objective external response). Why should this difference exist? The depth and interconnectedness of experience and emotive response in oral man would tend to heighten the feeling value of simple activities. This includes expectation, anticipation, and preparation, as well as the slower pace of life. Literate man would have less of these internal associations. Also, the eye requires a higher level and different type of stimulation than the ear to reach saturation.

As you live in the village, your life will begin to become contextualized. Sounds will take on more importance. As people enter your context, they will begin to become more important.

Literacy is not just learning to read. Inherent in reading is a tendency to abstract and fragment. Formal Operational logic requires this abstracted perspective. Children from oral cultures will have a tough time with certain concepts taught in

school. Some examples include: procedures, drawing maps, and giving directions. Classification and grouping, the mental processes that gave rise to modern science are easier for literate man due to his fragmented and abstracted mind which can shift perspectives. Studies have shown that oral man consistently groups objects based on one characteristic (usually real life association) and has trouble regrouping the objects on a different set of criteria. For example, given pictures of a boy with one eye, a cow with one eye, and a house, oral man normally would group the boy and house together and could not accept other groupings readily. Literate man switches between boy with cow (both one-eyed animals), boy with house (boy lives in house), and even cow with house (house and cow are property).

Oral cultures will have trouble with far transfer, the generalization of learning to new situations. Ability to transfer requires abstraction and a fragmented mental structure, while oral man learns best in context (near transfer, with specific application). For example, boiling water in school to make it safe may not automatically transfer to boiling water at home to make it safe. It may be necessary to teach specifically that water should be boiled at home. Brighter students in any culture can more easily make the transfer.

Many people in the urban areas are in the transition between the two cultures. You will see men and boys in shops reading books and magazines. This is something you will seldom see in the village at this time, but it is coming. Presently, the distance between Kathmandu and the U.S.A. is smaller than the distance between Kathmandu and the villages.

As a village based PCV, your first major shift of perspective will occur during language training. Try to avoid writing everything down, which is your literate bias. Rather, try to get the words to speak in your mind, so that you will start to speak the language rather than translate it. Don't worry about word meaning, the PC language method associates words in context and meaning will come automatically. Rather, concentrate on listening, use your ears rather than your eyes and your voice rather than a pen.

Speaking is a motor skill requiring the use of hundreds of precise muscles. Use your eyes to focus on the language teachers facial and throat muscles, your

subconscious will use this information to help you speak what you hear. Make a conscious decision to focus your attention on listening and watching. Research indicates that all people have an innate ability to discriminate facial features. This may be an important part of why mankind has language.

Language lessons will be give in "mock" context. Lessons will focus on vocabulary associated with that context like shopping, traveling, and so on. Notice how this will cause your language use to become contextualized. This is an example of near transfer training.

The expectations of communicators is critical for efficient transfer of meaning. As you become contextualized, your communication style will shift as your perceptual style shifts. You will become more understandable by Nepalis because you will start to think as they do, even the content of your communication will shift towards context.

Conclusion

These are only a few ideas about orality and literacy. These may serve as a framework to help you to understand, explain and predict the things that you notice in Nepal. It may also help you realize that the you have on the village people, and the impact they have on you, occurs simply because you are there communicating together.

GIVING AND RECEIVING FEEDBACK

by Roy B. Clariana

No matter how bad or good your teaching skills are at a given point in time, these skills probably won't stay at this level. A continual conscious assessment and adjustment of your teaching will naturally improve your skills, while neglect leads to the biological axiom "if you don't use it, you lose it." The best teachers value comments from others as a way of constantly improving their skills.

An analogy may be helpful; improving your teaching skills might be compared to cutting a fine gem. The gem in the rough is valuable but has extra baggage attached. The gem cutter looks at the potential within the rough stone, and then choose one point of the stone at a time to work on. By concentrating on only one edge at a time, the cutter approaches the final gem form. In the same way, concentrate in improving just a few aspects of your teaching at a time. Work on these until they become natural and automatic. Here is where feedback from someone is helpful. Others observing your teaching are in a position to spot these areas that need work, and also to point out the areas where you are strong so that you won't neglect to continue these techniques.

There are some general rules about feedback that you might keep in mind, both when giving and receiving it:

1. Give feedback immediately after the observation.
2. State only specific observed actions. (When you were writing on the board, you kept your back to the students. You always smiled when you called on a student. You repeated topics in different ways until most of the students got it. You asked questions often to see if they were getting it.)
3. Be sure to state some positive things, not just negatives.
4. Avoid comments about personality.
5. Feedback is best when the person solicits it (if you are good at giving feedback, people will approach you, if you are not, people will avoid you).
6. Empathize.

INSTRUCTIONAL OBJECTIVES

Peace Corps Teacher Trainer Reference Manual pp. 77-82.

The clearer a teacher can be in identifying which activities demonstrate mastery of a particular topic, the easier it is for him/her to set up learning activities, the student to carry these out, and the teacher to evaluate the student's performance.

Writing a Complete Objective

An objective is a statement which identifies exactly what the student should do, how well it should be done, and how long it should take or under what conditions the given task should be completed. The more exact the teacher is the easier it will be for him/her to evaluate the student's performance. Thus, if the teacher states an objective in terms of specific behaviors, the success or failure of a student can be easily observed. Any complete instructional objective has the following three parts:

1. Type of behavior - the specific action or performance expected of the student.
2. Condition - the circumstance(s) under which the behavior is to be demonstrated.
3. Criteria - the degree or level to which the behavior must be demonstrated to be acceptable.

Example: Given the picture of a flower (condition), the student will be able to label the different parts (behavior), with fewer than three mistakes (criteria) and complete the task in five minutes.

As you can see, an instructional objective can state each of the three parts in any order as long as they are included and a complete and accurate picture of the expected performance is drawn.

The chart following is meant to supply the teacher with a series of verbs that are both observable and measurable. Finding these verbs is often the most difficult part of writing a clear and complete objective. If the teacher can refer to these lists on a regular basis, the writing of objectives should be that much easier.

Verbs to Use in Writing Objectives (cognitive)

1. Knowledge

defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states

2. Comprehension

converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, paraphrases, predicts, rewrites, summarizes

3. Application

changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses

4. Analysis

breaks down, diagrams, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivides

5. Synthesis

categorizes, combines, compiles, composes, creates, devises, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes

6. Evaluation

appraises, compares, concludes, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, relates, summarizes, supports

Avoiding Errors in Stating Objectives

Considering the subject, context, aims and goals of a given unit, and the needs of the students, the teacher should be able to develop objectives which provide direction to a given unit. In doing this, however, it is important to avoid the many pitfalls that are commonly associated with objectives.

Below are listed four common errors in the stating of instructional objectives.

1. A common error in stating instructional objectives is to describe teacher activities rather than student behavior.
   wrong: The student will be exposed to the interrogative.
   better: Given three statements, the student will be able to rephrase them in question form.

2. A second common error in stating objectives is writing objectives in terms of learning process rather than learning product.
   wrong: The student will gain knowledge of the difference between triangles.
   better: The student will be able to construct three different triangles.

3. The third common error in writing objectives is to list the subject matter to be covered instead of the learning outcomes.
   wrong: The student will be able to know the human respiratory system.
   better: The student will be able to diagram and label the human respiratory system.

4. The fourth common error in writing objectives is to write with covert behaviors which are internal and difficult to observe by another person rather than with overt behaviors, which are manifesting activities that can easily be evaluated by an observer.
   wrong: The student will be concerned about the welfare of others.
   better: The student will show concern for others by volunteering to help with food distribution.

Subject-Specific Verbs

As a final reference point, here are a few subject-specific verbs that can be used in writing objectives.

Language

abbreviate, accent, alphabetize, call, capitalize, edit, hyphenate, indent, outline, print, pronounce, punctuate, read, recite, say, sign, speak, spell, state, summarize, syllabify, tell, translate, verbalize, whisper, write

Math

add, bisect, calculate, check, compute, count, derive, divide, estimate, extrapolate, extract, graph, group, integrate, interpolate, measure, multiply, number, plot, prove, reduce, solve, subtract, tabulate, tally, verify

Lab Science

Apply, calibrate, conduct, connect, convert, decrease, demonstrate, dissect, feed, grow, increase, insert, keep, lengthen, limit, manipulate, operate, plant, prepare, remove, replace, report, reset, set, specify, straighten, time, transfer, weigh

In summary, an instructional objective is a description of what the teacher wants the students to attain or achieve by the end of a given time period. Well-stated instructional objectives are not open to different interpretations. A good and useful objective uses concrete action verbs to describe what the learner will do, feel, and/or think after studying a unit or lesson. Instructional objectives are often the key to a clear and well organized lesson and a starting point for fair and accurate assessment.

WHAT'S IN A LESSON PLAN?

Most curriculum guides cite four key steps that are basic to any kind of lesson planning. They include:
Where do I start? Where am I going? How will I get there? How will I know when I arrive?

Purpose

Many teachers begin with a brief general statement describing what the lesson is all about and then specify a list of sub-topics in outline form from which they write their objectives. Experience has shown that both teachers and students are more effective when they know what is expected.

Finding out where the students are

If the teacher has not worked with the group of students previously, it may be necessary to devise some form of formal pretest to assess their level. Once an experienced teacher has worked with a group of students, he/she may be able to assess students' knowledge of the subject matter more informally.

Devising instructional procedures

Looking ahead allows teachers to incorporate variety into teaching strategies which introduce, explain and/or summarize a topic or subject. Suggestions follow in another session.

Assessment

Every plan includes provisions for measuring the extent to which the stated objectives were achieved, whether formally through tests or informally. You may also assess the lesson and your teaching.

Planning daily lessons

A general lesson plan format has been developed based upon numerous observations of excellent teachers and some research with students in the U.S. The parts include:

Preinstruction (less than 5 minutes)

1. Warmup - chitchat.
2. A brief review of the previous lesson.
3. Introduction to the new lesson.

Instruction

1. Develop content with examples.
2. Check for understanding.
3. Guided practice.
4. Independent practice.

Closure

1. Summary of the lesson.

Assessment

1. Test, review the test, reteach, retest.

Preinstruction

Though usually only a few minutes long, preinstructional activities are often critical for making the lesson meaningful (versus rote) for the students and for providing an organizing framework for the lesson content. Preinstructional activities:

- Focuses student attention on the presentation by employing an activity, event, object or person that relates directly to student interest or previous experience;
- Provides a structure or framework that enables the student to visualize the content or activities of the presentation;
- Assists in clarifying the goals of the lesson;
- Evaluates or reviews previously learned material before moving to new material;
- Provides a smooth transition from know material to new or unknown material by using examples, analogies and activities.

Instruction

Typically, instruction in Nepali schools tends to be expository. The teacher serves as source and the students are expected to learn by rote (memorization). In an oral culture, it is easier to memorize something heard than something read, and so the students prefer to hear the textbook. In fact, most students must read outloud in order to understand what they are reading, but this requires a lot of mental power because they must convert the words (abstractions) into spoken words and the comprehend what they have heard themselves say. So reading tends to be a rather round about way to learn something. (Remember that U.S. elementary school children often read aloud in class. Young children in the West spend their entire childhood (12 years +) picking up a literate way of looking at the world.)

Instruction does not have to be memorization. Break the content down into small chunks and try to make each chunk meaningful. The two basic ways to present a concept are 1. give the rule (or concept, or content) and then examples, or 2. give examples, and then the rule. Examples can be real touchable concrete things, drawings, charts, demonstrations, experiments and many others. As a general rule, the younger the child, the more touchable the example must be. More abstract examples will work with older children, but in all cases, make the example meaningful (they have seen it in their own lives).

Check for understanding after each chunk. You can ask convergent questions that require yes-no answers. Like "Do fish have feet? Then What do they have?" If you have a diagram (or a real example like a fish), you can point to different parts and ask the students to name that part. You can ask a student to draw the diagram on the board and while the others do so in their notebooks and then comment on the drawings. As you language improves, you can try divergent questions that make the students think.

The board work and notebook work are examples of guided practice. Language classes would utilize this extensively by saying and and having students repeat phrases. Language and math classes could write or correct a few examples and problems on the board, and then have others check the work.

Independent practice would most likely be worked in their notebooks. Usually

more problems are given for the students to work, however, these need to be checked. Glance at notebooks while the students are working. Answers to math problems can be said aloud or worked on the board later.

Closure

Closure is an important part of cognitive organization in both literate and oral cultures. Memory seems to be grouped or organized by episodes. Preparing the student for the end of the lesson will affect the unconscious organization and storage into long term memory. Closure:

* draws attention to the end of the lesson,
* helps organize student learning,
* consolidates or reinforces the major points (memory hooks) which have been learned.

Closure is often a summary of the lesson main points given either by the teacher or solicited from the students.

Assessment

Assessment usually involves tests, and my general advice is to give as many tests as you can. Remember that tests are also teaching devices. Cover the chapter as quickly as possible and give the test, with the intention of reviewing the test and then reteaching and retesting. If you make good tests and review the correct answers after the test, your students will learn a lot about the subject content and about taking tests.

Lesson Plan Format

Subject:
Topic:
date:

Objectives: This tells what the students should be able to do by the end of the lesson. Each objective should be written in behavioral terms.

time	activity/procedure	materials

Evaluation: How will you know that the students have accomplished your objectives? Write down the formal or informal method of assessment you plan to use.

Comments: How would you do the lesson differently next time? What are special points to remember? Is one activity particularly effective?

LESSON PLANNING FOR MATH/SCIENCE

by Damien Jones N/160

About a week after the start of school for me here in downtown Nepal, I realized I desperately needed some kind of organization for my lessons. So I made a standard lesson plan format. Now don't cringe upon hearing the words "lesson plans". People come up with all kinds of rules for lesson plans like :"anyone should be able to read your lesson and teach it." Who cares if someone else can read it? In the States, I would never have done anything as dorky as make a ditto for lesson plans. But in the States I didn't need a place to put a whole slew of translated vocabulary and I didn't need to worry about what science equipment to bring to class. And besides, I've become a lot dorkier since arriving in Nepal, so having files and a lesson plan format fits.

I made a form using stencil paper, duplicating ink, and duplicating paper which is available in all centers, I'm told. I made the dittos on both sides of long white duplicating paper to give me a little more room on each sheet. The words are in Nepali only so my colleagues can more easily understand what the sheet is for as they sit and watch me work in the office. I'm so sensitive --culturally, that is. On the next page is a copy of the format with a number placed next to each word referring to the explanations below. Basically, one sheet equals one lesson. But if I don't finish a lesson, which happens often, I draw a line across the paper where I left off and put a new date and warm-up on the bottom unfinished portion for tomorrow; or I cross out the bottom and incorporate that material into the next lesson.

Explanation of the terms on the handout:

1. Grade/subject: (6-math, 7-science...)
2. Lesson: (addition of decimals...)
3. Date: (6 June)
4. Lesson Number: (to reorganize in case the wind blows open the file)
5. Page Number: (pages in the textbook)
6. To Repeat: (this is to help force me over my laziness. After I walk in and tell everyone to "relax, sit down, it's only me", class starts. For science, I'll have randomly chosen questions from an old lesson which I hurl at students as they frantically flounder through their notebook to find the lesson so they can raise their

hand too. This also helps me review old vocabulary. For math, questions are more carefully selected. It's typically a review of a skill they need for the day's topic. For instance, before students can multiply fractions they would need to remember (ha,ha) how to change a mixed number to a fraction. This often becomes a short lesson in itself, but with lots of student involvement.

7. To bring: (stuff needed to teach the class)

8. Words: (vocabulary, the English/Nepali translation of the lesson's new words. As I'm teaching and forget new vocabulary, I often glance here to find it.)

9. The Lesson: (notes, outline, demonstrations; for math, examples)

10. Test Questions/to repeat/other: (I rarely use this, but it's for brilliant fleeting ideas.)

11. Homework: (My Headsir told me this means homework.)

{Blank copies of Damien's Lesson Plan format in Nepali are available.)

CRITICAL SITUATIONS THAT MAY ARISE IN THE NEPALI CLASSROOM
excerpts from previous PC/N PST.

1. Teaching situations must involve the active participation of students. Assume that you are a teacher that firmly believes in this principle. You prepare a demonstration (hands-on) lesson. After the demo, you ask your students what they have observed.

   There is no response.

   Finally, a student at the back asks you to please just put some notes on the black board for the class to copy into their notebook.

   a. What will be your response to this student?
   b. Why did he ask this question in the first place?
   c. How does this make you feel?

2. At the beginning of the school year, you discover that your students' abilities and aptitudes cover a wide spectrum. You decide to administer a test that will give you information on individual strengths and weaknesses and will help you plan your work accordingly. You spend several hours constructing the test items and in your best Nepali explain the purpose of the test. In spite of this, you soon observe several students blatantly searching through their textbooks for possible answers or openly asking their friends for help.

   a. How would you deal with this situation?
   b. If you did notice not only that students help each other on tests, but also that teachers help students on the final exams, what conclusions might you draw about the importance of passing exams in Nepal and about the acceptability of cheating?
   c. How does this attitude compare with your personal feelings about honesty?

3. Having spent your whole life in classroom settings that have adequate furniture and space, you now find yourself in front of a Nepali classroom containing wall to

wall benches upon which are squeezed fifty restless thirteen year olds. As the noise level in the room increases, your patience with the situation and the students decreases. Finally you single out a student in the back of the room who is one of the main centers of disturbance. After a futile first warning, you tell him to leave the room. He protests against your decision and refuses to leave.

a. Despite the difficult circumstances that led to the confrontation, he had defied your authority in front of the whole class: What do you do?

b. How do you feel about maintaining classroom discipline in the setting?

4. During the first five months at your school, one teacher on the staff is especially helpful in arranging a place for you to live, in discussing language problems, in general being very empathetic with you as a person. You also observe that he is one of the most dedicated and skilled teachers in the school. As the relationship grows, you find out through your friend that he and the headmaster are involved in a personal dispute over the lifestyle the teacher is leading outside the school. At the beginning of half-yearly exams, your best friend on the staff is told that his services are no longer needed at the school.

a. What would be your initial reaction to this teacher's dismissal?
b. Could or should you stay neutral?
c. What effects might these relationships have on your effectiveness and also on classroom management?

<u>Aspects of Discipline</u>

Discipline in the traditional Nepali classroom tends to be authoritarian. Minor forms of corporal punishment are not uncommon as a method of maintaining order. Volunteers tend to react to this negatively. Also, volunteers at times find themselves becoming friendly with the students and discipline breaks down because they are not conforming to their expected teaching role. In the long run, most students feel more comfortable in a traditional student-teacher relationship. Below are some general principles developed by previous PCV teachers in Nepal that you should consider adopting as your own, at least at first.

General Principles:

1. Start by being very strict and demanding. Students will push and probe a new teacher to find out how much they can get away with. You can always let up later, on a class by class basis.

2. Be well prepared before entering the classroom. You must be sure of your subject and the material you intend to cover for the period. If you seem uncertain of yourself or continually pause to look at the book, students will quickly pick this up and become unruly.

3. Involve every student as much as possible. Keep them busy. It is often a good idea to be prepared to teach two hours of material for a one hour class in case you get through more quickly than you anticipated.

4. Students are very good at reading the teacher's mood. If you are grumpy, short tempered or lack confidence, the class will respond accordingly. A cheerful and confident teacher generally has a happy and responsive class (smile sometimes).

5. Fit the discipline to the problem. That is, judge the infraction and deal with it according to degree of severity. Equally important, fit the method of discipline to the personality of the student.

6. Fit the discipline to your personality.

7. Find the cause of student's poor behavior. If a student is very quick or very slow, either boredom or frustration can be the root of the problem. Give bright students extra work. To the slow students, give special and continued attention and perhaps extra time out of class. Be aware of sudden changes in a student's performance. This may be due to a problem outside of school. Remember that many students, especially girls, do not have an opportunity to study at home because of household chores. This will affect their homework and behavior in class. Also, students want attention, and may be disruptive to get it, so be sensitive to students needs.

Methods of Control:

1. Separate a troublemaker. Quickly and decisively change his seat. Also, put troublemakers to work holding charts or writing for you, but be sure to do this before he starts that day, but never do it after bad behavior, because this will reinforce the behavior that you want.

2. Keep all students involved, but especially make those in the back of the room feel that you are watching and involving them as much as those in the front.

3. Use your eyes. Keep eye contact with all your students, not just the good students in one section of the room. Also, staring students down without a word is an effective way to get them quiet. Wait for the room to get quiet before starting. Some teachers use signals like raising a hand to indicate that students should raise their hand and close their mouth.

4. If someone is not paying attention, you might ask the student to repeat what you have just said. Asking questions occasionally to randomly selected students from the class roll tends to increase students' attention.

5. When you threaten a disciplinary measure, be sure to follow through. If you do not, you might as well leave.

6. Talk to other teachers about a particular student to check on their methods of discipline.

7. Send a student out of class. This is not yet common in Nepal and is regarded as a serious move. Send the student out for five minutes to a specific place (tree, bush), then readmit student. Repeat if necessary.

8. As a last resort for a continually unruly student, send him to the Headmaster's office. Students are usually dealt with severely and they dread this form of punishment. Such recourse should not be considered as your failure. Some students are chronic troublemakers and will respond to nothing else. Before doing this, be sure that it is all right with the Headmaster.

9. Students can be manipulative. They ask where you live, how many brothers and sisters you have; thus wasting class time. Save this kind of discussion for outside of class unless you can relate it to the lesson.

10. Know how to tell a student to be quiet or know what to do if he starts showing lack of respect. Learn the Nepali terms to handle these situations.

11. No student likes to be pointed out as a slow learner or to be made a fool of. This may cause hostility and consequent problems.

12. If a class is becoming restless, or not paying attention, change your method for a few minutes. Besides changing the pace, you can teach non-verbally or in English. Your students will be interested in watching and hearing you.

Some Things You Should Think About

- To hit or not to hit.
- Banishing students.
- Sending student to Headmaster.
- Not allow tardy students to enter late.
- With unruly class; stop, refuse to teach and leave class.
- Talk with parent of unruly student.
- How can you keep everyone busy (and so out of trouble).

Other Suggestions by PCV for Minimizing Discipline Problems

1. Use appropriate greetings from day one.
2. Vary activities, 4th graders get bored in about ten minutes.
3. Ask yourself "What are the other kids doing?" when you are working with a few students.
4. Ask questions randomly, using the class roll.
5. Try a "Reign of Terror".
6. Work with HM and teachers, encourage teachers to control their classes for the full period.

Case Studies:

1. You have recently picked up 8th grade, a large class of 80+ students because the

regular teacher went to India for further study. There is a group of 10 serious students who hang on your every word, 15 or so students who try pretty hard, and 55 students who oscillate between weak and hopeless, constantly disrupting the class in minor ways. No matter how prepared you are going into class, half of the students are looking out the window. After you get to know the class, it becomes obvious that "The 55" probably could not even pass a 5th grade level test.

How would you approach the task at hand (long term)?

2. While teaching math to a group of 50 6th graders (45 boys), a small stone flies by you while you have your back to the class. You are not really sure of what you saw, so you keep writing on the board, and as you turn around to face the class, another small stone hits you on the arm. There are at least 15 students who could have thrown it, judging from its trajectory. It flashes through your mind that this might have been prompted by your having tossed tidbits of chalk at daydreaming students to get their attention earlier in the week.

The class is hushed, awaiting your reaction?

3. You are teaching at a school which has a 10% female student population. In the months that you've been teaching at the school, you have been unsuccessful in getting girls to participate in any class activities. They sit in the back of the class and chew their shawl corners. They have scored less than 5% on the tests you've given and seem to be totally out of it. When you put out a call for vegetables, however, they're always right there with vegetables for "sir". The general situation feels wrong.

What can you do?

4. You are a PCV teacher in mid-western Nepal, where you have been teaching for a little more than 2 months. You don't have much to do with the other teachers. As you approach the school one morning, you see that the gate is blocked by a large group of students. As you move to pass them, the largest of the 10th graders tells you that you

may not pass.

What has happened? What should you do?

5. You have been teaching for a week at the primary school at your new post. The school building, which is twenty years old, had old planks for walls which essentially means that you're teaching in the same room with another teacher. Also, one or two classes are always unattended, and the overall noise level during teaching is not only effecting your teaching but causing you to hate your co-workers.

What can be done to avert a nervous breakdown or a murder case?

HOMEWORK

Some problems:

1. Copied homework.
   solutions: look for copied work, ask which students usually stay together, also note if the quality is too high. You can refuse to accept it, or live with it.

2. Students may not have free time at home (especially girls).
   solutions: Emphasize that there is time during school when students can do homework. Make reasonable assignments.

3. Homework for big classes is hard to grade.
   solutions: Make the time, simplify checking, have the students exchange and check.

How to get your students to do homework:
Punishment, make it fun, make it easy, grade it and have the grade count, rewards.

Terminology

English	Nepali
1. fair note book	
2. rough note book	
3.	
4. problem set	
5. home work	

PCV comments

"In Nepal giving homework is a different story than in the U.S.A. Students have much less free time and the system here actually demands more of the students. We (PCVs) teach the hardest subjects (math, English) so we definitely need to give homework. But how?"

"Nepali tests are always modeled on the textbooks' problem sets. Therefore, we always should use the textbook's problems to some extent while assigning homework, especially in 5th and 7th grades, for whom the year-end exams are prepared by the District Education Officer. A lot of problem sets are fine, but some should be modified or not used."

"Not giving students inappropriate problems from the book and supplementing book homework with your own problems is crucial to giving good effective homework in Nepal."

THE ABCs OF SOME NEPALI MATH METHODS

Most math operations involve carrying out a set of steps that have been memorized. Doing math is just a matter of following a known procedure or algorithm (like a recipe). The term algorithm is derived from the name of the ninth-century Muslim mathematician and astronomer Al-Khowarizmi. He was a member of the House of Wisdom, an academy of scientific thought in Baghdad. His treatise, Al-jebr w'al-mugabala, meaning "transportation and removal," referring to terms in an equation, defined the system known today as algebra.

Student math mistakes usually occur in two ways. 1) The student does not know the procedure well enough (practice, and emphasize precise steps). 2) The student may forget a step or skip steps (some teachers require students to "show their work").

As a student works through a math procedure, he must keep up with the steps. Students in America (visual learners) are taught to use visual markers like canceling out and borrowing to help avoid mistakes. Nepali students keep up with the steps in their head (oral learners), and so mistakes may more easily occur.

Question. Should you use the Nepali method or the American method? A book could be written on this one topic? Either way, you should know how math operations are done here.

Group Instructions

1. Addition, subtraction, division.

In Nepal, the methods for teaching addition, subtraction, and division are different than those used in America. Each is presented below:

Addition

USA	NEPAL
249	249
183	183
+____	+____
432	432

The basic difference is that the number to be carried in Nepal is written off to the side, if at all, and only seldom crossed out. As a result, they are sometimes confused.

Subtraction

USA	NEPAL
564	564
183	183
-____	-____
432	432

In Nepal, everything is done in one's head. When borrowing, instead of making a six into a five, the eight below it is increased to a nine!!! The procedure works, but doesn't follow the principle involved, and penalizes forgetful students.

Division

USA	NEPAL		
_92_	a. 4)368(92	b.	__92_
4|368	_36_		4|368
_36_	xx8	or	_36_
08	__8_		xx8
__8_	x		__8_
0			x

Basically the difference in the Nepali method is that the answer is written off to the right (a.) or is written anywhere above the line (b.). Notice that this will cause difficulty with place value. (9.2/92)

2. Fractions.

Explain how one could state in Nepali a simple fraction (eg. 2/5) and explain the language for a simple problem.

2/5 + 1/5 = 3/5

Explain how to make the students understand the meaning of

1/2, 1/3, 1/4 and 1/5

3. Multiplication

Using the Nepali Math Methods handout, explain the multiplication song for one's (1 x 1 = 1, 1 x 2 = 2, ...) and have the trainees sing it themselves for the two's. It is important to start multiplication speed drills with older students to automate the multiplication tables and reduce its oral repetition, though this song is important for younger students.

4. Highest Common Factor (HCF).

Using the Nepali Math Methods handout and the 7th grade math book as a reference, show how Nepalis teach H.C.F. by both the division and the factoring method.

5. Lowest Common Multiple (LCM).

Using the Nepali Math Methods handout and the 6th grade math book as a reference, show how Nepalis teach L.C.M.

6. Square Root.

Using the Nepali Math Methods handout and the 7th grade math book as a reference, show how Nepalis teach square root.

NEPALI MATH METHODS

The Multiplication Table

This is the pattern that children in Nepal follow in reciting their multiplication tables. You may get a better response by asking "saat panche kati hunchha?" instead of "saat into paanch baraabar kati hunchha?". The middle term (ekan, duna, ...) stays the same, only the first and last terms change.

the equation	in words	division

(NEPALI TERMS)

The basic format of the division problem is:

divisor) dividend (quotient

Lowest Common Multiple

The lowest common multiple is the smallest non-zero number that is evenly divided by each of two or more numbers.

Example: Find the LCM of: 36, 24, and 20.

A common multiple could be obtained by just multiplying 36 x 24 x 20 = 360, but this is not the lowest common multiple. The lowest common multiple must contain some (or all) of the prime factors from each of the three (36, 24, 20), so the prime factorization of each of these must be obtained.

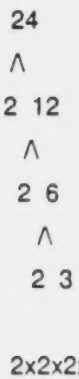
In order to get the LCM, a prime factor which appears in two or more of the numbers must appear as a factor of the LCM. This prime should appear only as often as it appears in the number in which it is most common. For example: the prime factor 2 appears twice in 36 (2x2x3x3), three times in 24 (2x2x2x3) and twice in 20 (2x2x5). Therefore it must appear three times in the LCM. In the same way, 3 must appear twice, and 5 must appear once, so the LCM for 36, 24, and 20 is (2x2x2x3x3x5) = 360.

A division procedure or algorithm is also commonly used here for obtaining the LCM. The underlying principle can be seen by looking at the prime factors of each number in the problem.

In the example, the lowest prime factor that will evenly divide into any of the numbers is used as the divisor for each step. If a number cannot be evenly divided by the divisor in the next step, it is brought down unchanged to the next step. This continues until only ones or prime numbers remain as dividends. In the example, the problem was finished when the prime numbers of 2, 3, and 5 remained as dividends. The LCM is then extracted by multiplying all the divisors by the last row of dividends.

Factor Trees for LCM (not a Nepali method)

In order to teach students to extract prime factors, the idea of factor trees might be used. For example, 24 can be factored:



2x2x2x3= 24

Highest Common Factor

HCF is defined as the largest number that will divide evenly into two or more numbers. By inspecting the factorizations of each number, the common factor can be selected.

For example, the HCF of 24 (2x2x2x3) and 36 (2x2x3x3) is 12 (2x2x3) because two 2's and one 3 are common factors of both numbers. Note that 12 will go evenly into both 24 and 36. For the example 24 (2x2x2x3), 30 (2x3x5), and 36 (2x2x3x3), the HCF is 6 (2x3). Note that 6 will go evenly into all three numbers (24,30,36).

The Nepali method of extracting the HCF of two or more numbers consists of a division type algorithm. The rule to remember is that the divisor from one step becomes the dividend in the next step.. When the divisor finally divides evenly into the dividend, that divisor is the HCF.

For example: Find the HCF of 24 and 36.

```
24 ) 36 (1
   24
  ____
   12) 24 (2
      24
     ____
       x
```

In the first step, 24 is the divisor and 36 is the dividend. The remainder of 12 becomes the new divisor in the second step and the old divisor of 24 becomes the new dividend. Since 12 divides evenly into 24, 12 is the HCF.

To find the HCF of 20, 24, and 36.

```
12) 20 (1
   12
  ___
   8) 12 (1
   8
  ___
      4) 8 (2
         8
        __
         x
```

First extract the HCF of any two of the numbers, such as was done for 24 and 36 above. That HCF becomes the new divisor and the remaining number (20) becomes the dividend, proceeding as before, the remainder of 8 in the first division becomes the new divisor and the old divisor of 12 becomes the new dividend. The second division gives a remainder of 4 which becomes the new divisor, while the previous divisor of 8 becomes the new dividend. Since 4 goes into 8 evenly, the HCF of 20, 24, and 36 is 4. Simple!

Fractions

The only fraction with specific Nepali names are 1/2, 1.3, and 1/4. All the rest follow the pattern of 1/5: "ek bhaagko paanchau bhaag" or "ek ko muni paanch".

Square root

It is possible to approximate a square root through a fairly lengthy procedure. Here is how to do it:

Find the square root of 544.13

1. Pair digits in both directions from the decimal point. Add zeros to the right of the decimal to form as many pairs as decimal places desired in the answer.

```
_ __ __ __
5 44. 13 00
```

2. Find the largest perfect square (4) smaller that the first digit or digit pair (5, left side). The square root of this number (4, 2) is the first digit of the answer.

```
 _2_________
 | 5 44. 13 00
```

3. Write the first digit of the answer above and to the left side also. Multiply and subtract the product from the first digit (or digit pair) to form a new dividend.

```
   _2_________
2  | 5 44. 13 00
   |-4__
   1 44
```

4. Add the first digit of the answer to itself. This sum is the first digit of the next divisor (the second digit of the answer is still unknown).

```
   _2_________
 2 | 5 44. 13 00
+2 |-4__
4.. | 1 44
   |
```

5. Estimate the number of times the new divisor will go into the new dividend (3). This is the second digit of the answer, as well as the second digit of the new divisor.

```
  _2__3_____
  | 5 44. 13 00
  |_____
43| 1 44
  |
```

6. Multiply the second digit of the answer by the new divisor, subtract the product from the dividend, and bring down the next pair to form a new dividend.

```
  _2__3_____
  | 5 44. 13 00
  |_____
43| 144
  |-129
  |  15 13
```

7. Obtain a new divisor by adding the last entered digit to the old divisor. The last digit of the new divisor is again unknown.

```
  _23_____
  | 5 44. 13 00
  |_____
43| 144
+3|-129
46.|  1513
```

8. Divide the new dividend by the new divisor. Multiply the divisor by this digit, and subtract the sum from the dividend. Bring the next pair down to form the new dividend.

```
      _23__._3____
      | 5 44. 13 00
      |_____
      |
____  |________
463   |  1513
      |-1389
         124  00
```

9. Add the last entered digit to the old divisor. Add an unknown digit to this sum to obtain a new divisor.

```
      _23__._3____
      | 5 44. 13 00
      |_____
      |
__    |________
463   |
+3    |_______
466.  |     12400
```

10. Divide as before. Continue until the required number of decimal places is obtained in the answer.

```
                _23__._3__2_
               | 5 44. 13 00
               |_____
               |
               |________
               |
               |___________
4662           |    12400
+2             |   -9324
4664                3076
```

```
check:
      23.32
      23.32
   x_______
      4664
     6996
    6996
  4664
 +_________
  543.8224
```

Comments

Remember how frustrated you felt trying to understand these procedures. But once you memorized and practiced them, they became easy. In the same way, just because you think that subtraction or long division is easy doesn't mean that it is easy for a fourth grader who has not yet thoroughly learned the procedure. Your job as a teacher is to make the steps in any math operation as clear and concise as possible, and then give graduated practice. The first problem set will be like your worked examples, each additional problem set can be a bit harder.

USE OF THE BLACKBOARD

A list of ideas developed during PC/N PST

1. Have the board erased before starting class.
2. Write title of lesson and objective on the board.
3. Write large enough.
4. Don't erase too quickly.
5. Check for glare.
6. Don't mix old and new writing, erase as necessary.
7. Don't run a problem off of the board.
8. Rearrange desks if necessary.
9. Arrange seating of boys and girls.

ASSUMPTIONS OF SCIENCE

by Roy B. Clariana

Science as it is regarded today developed several hundred years ago as a result of new ways of thinking, perhaps due to the advent of printing and the wide distribution of books. Science requires an abstracted point of view (that occurs in a literate culture). People in the U.S. tend to think scientifically even though most are not scientist and few even like science, because our culture is steeped with scientific thinking.

Science (and to some extent, our cultural) has specific underlying assumptions that are accepted as truth. These assumptions provide a basic mental set for looking at the world. These assumptions include: 1. The world can be known, 2. What can be known is known through the senses, 3. Science is objective, and requires an unaffected observer, 4. The world (cosmos) is ordered in a linear cause-effect relationship, 5. Concepts, principles, theories, laws arise from data (sense observations), and 6. Scientific "truth" is temporal and forward moving.

We will look at each assumption and relate it to a non-scientific or oral culture.

<u>The world can be known</u>

Thinkers have always been aware of the uncertainty of the world. For example, the Jaina philosophy of ancient India was based on indeterminism and a range of possibilities. The seven categories of Jain Logic are as follows:

Maybe it is.
Maybe it is not.
Maybe it is, it is not.
Maybe it is indeterminate.
Maybe it is and also indeterminate.
Maybe it is not and also indeterminate.
Maybe it is and it is not and also indeterminate.

Modern science began as a way to explain the world, and tended toward a rigid mechanism. Everything, including men, were viewed as machines. Even the

universe was compared to the mechanism of a clock. Recently, scientific thinking has shifted from this mechanism (Maybe it is, category 1) to a more probabilistic view (category 5, Maybe it is and also indeterminate) which allows for system complexity to produce unanticipated (novel) effects.

The oral mind is not constrained in the same way as the literate mind and can accept all seven categories. Authorities or the elite determine "truth" and then select the convenient and compatible perspective.

What can be known is known through the senses

The oral mind knows that the senses can be tricked. If theories are based on incorrect sense data, how reliable are these theories? Obviously not very reliable. Deception of the senses is even taught in science class (see Chapter 3. Sense Organs in the Fifth Grade Science Textbook). Myths, ballads, parables, riddles, and stories handed down from authority are the sources of knowledge, and are much superior to observation with faulty senses. Also, religion is an important cultural matrix and would advocate reason beyond the senses.

Science is objective, and requires an unaffected observer

For the oral mind, everything is internally grounded and subjective. Voices and words are not separate but heard together. The oral mind is aggregate, participatory, and internal; unlike the fragmented and external literate mind. In an oral culture, an unaffected observer is nearly impossible.

The world (cosmos) is ordered in a linear cause-effect relationship

People in every culture understand cause-effect relationships. When seed is put into the ground, it comes up; when the bull is put with the cow, you get calves.

However, a scientific mind uses cause-effect relationships as an analytical tool and values describing and discovering these relationships because of their predictive and explanatory potential. The oral mind sees cause-effect not analytically, but as aggregates or associations. Certain things "go together" naturally. The cow and the

bull were together, it is good that there should be a calf, and it has always been so. A seed in the ground sprouts, it is right that it should come up, and it will always be like this. Oral people learn these associations from authority. These associations are confirmatory of 1. the authorities that made them known (old people, revered books) and 2. their own internalized (subjective) world. If the seed doesn't sprout, there is something seriously "wrong" with their world.

Concepts, principles, theories, laws arise from data (sense observations)

The source of authority for the scientific (literate) mind is based upon data. Data form concepts, concepts form theories, theories form laws, each level is a further abstraction from the real world. A "good" scientific theory is explanatory, parsimonious(as simple as possible), and fruitful (causes more theories to be produced). For the oral mind, this series of abstractions based on data is no match for confirmed authority. The principles handed down by authorities adequately explain the world while at the same time maintain tradition and the status quo. The explanations may be simple or complex.

Scientific "truth" is temporal and forward moving.

For the scientific mind, theories (knowledge, truth) formed from data are subject to verification rather than confirmation. Current theories are considered correct if they fit the data. As more data is collected, new and better theories replace the older theories, and knowledge continues to "move forward".

For the oral mind, knowledge and truth comes from authority and is relatively stable. Since it is stable, and true, then it is really true and valuable and so worth revering and memorizing exactly. In oral circles, scholarship is measured by how much "truth" you contain and can recall without error. The world is seen as old, and everything worth knowing is already known. A teachers role is to relate this truth accurately (guru like) and rote learning is valued.

Implications for Science Teaching

Most of the assumptions of science are invalidated or diametrically opposed to the

values of an oral culture. It seems that teaching science is like trying to mix oil and water, you shake it up, but it settles back out with only a little of the two mixing. The students will almost insist that you write notes on the board that they can memorize. Science explanations learned by rote don't easily transfer to real life or thinking, and so science becomes just another explanation, "a Western magic". Science learned by rote will not change thinking patterns.

Science has content and methods, often referred to as product and process. The content of science can be memorized, but science process must involve scientific thinking. Including lessons that teach science process along with product should nudge students towards scientific thinking.

THE PROCESSES OF SCIENCE

Eleven science process skills are usually listed in science education textbooks, these are:

1. **Observing** - watching, discriminating, verbalizing, and recording.
2. **Classifying** - placing sets of objects into groups based on their attributes.
3. **Measuring** - generalizing and quantifying (length, volume, mass, time) with standard units.
4. **Hypothesizing or predicting** - looking for and the generalizing cause-effect relationships.
5. **Describing** - verbal summarizing skills, often descriptions are of procedures or steps.
6. **Inferring or making conclusions from data** - like a puzzle, making all the pieces fit, generalizing to come up with principles.
7. **Asking insightful questions about nature** - this is the result of a general attitude that the world can be known and controlled.
8. **Formulating problems** - the ability to notice that something is inconsistent or incomplete and then to form ideas about the problem.
9. **Designing investigations including experiments** - Controlled experiments hold all variable constant except the one variable of interest in order to see how this variable is involved in a cause-effect relationship with some dependent variable.
10. **Carrying out experiments** - involves precise observation and record keeping skills as well as objectivity.
11. **Constructing principles, laws, theories from data** - this involves organizing data and then looking for principles to explain the organization. Generalizing and abstracting in order to explain.

To do any of these is to be actively involved and thinking. Occasionally requiring your students to do one of these science processes will help them by giving them internal representations that can be used for thinking about science concepts thus making science more meaningful and making them more scientific.

DIFFERENT INSTRUCTIONAL METHODS

Instructional methods may be placed on a continuum that has teacher dominated activities at one pole and learner dominated activities at the opposite pole.

teacher <----------->learner

Some of these activities move left or right depending upon the teacher and students. What an individual considers to be dominance is subjective (what is abstract is also subjective, for example, a theoretical physicist would consider quantum mechanics to be concrete, for most of us it is abstract). You and your students will probably have a different idea about dominance (from their viewpoint, you are not dominant enough, from your viewpoint the other teachers are too dominant).

Presented below are two lists of teaching methods. The first is taken from a previous Nepal math/science training by Doug Hall and lists and defines 11 methods. The second list is taken from Science and Society by Peterson, Bowyer, Butts, and Bybee and lists 35 methods.

(Science) Teaching Methods

by Doug Hall

The teacher has a responsibility to his students to strive to provide them with the best education possible within the limits of resources available to him/her. In order to carry out his responsibility, the teacher must become familiar with different teaching techniques, plan and carry out his lessons using those techniques, and continually evaluate and improve the effectiveness of his own teaching.

Each topic in the science curriculum can be taught in many different ways. It is the responsibility of the teacher to teach each lesson in what he believes will be the most effective way. Teachers, like students, have different personalities and interests. Each teacher should try different methods, and then use those methods which work best for him and his class. He should not be surprised to find that

different classes respond differently to the same techniques or that the same techniques may obtain different results with the same class under different circumstances. A teacher should be flexible, able to vary his techniques as subjects, students, and situations require.

In general, teaching methods can be classified into twelve categories: reading and recitation, lecture, discussion, outside authorities, demonstration, drawing and writing, oral reports, home tasks, field trips, games and competitions, student activities, and experimentation. Each of these is described below:

1. **Reading and recitation** - This is the technique of having students, either individually or as a group, read from their textbook in class. Many teachers in the schools of Nepal often use this technique. For example, students might be asked to repeat over and over again a paragraph in their text concerning the formation of clouds until they have memorized it; or a single student might be asked to read the entire chapter on water aloud to the class; or each student, as he completed reading a section, could call on another student to answer a question and then that student, in turn, would read a section from the text and so on. Certainly recitation is an easy method to use as it requires no planning on the part of the teacher and little creative effort on the part of the student. Unfortunately, this is not a good technique to use as it does not involve the students with anything but words which are often meaningless to them. It does not develop their curiosity or their interest. Recitation is a method which will help achieve memorization but certainly not true understanding.

2. **Lecture** - This is the technique whereby the teacher reads to the students about the subject matter from the textbook or tells them about it in his own words. Often the teacher may write notes on a chalkboard or otherwise illustrate what he is saying. By blending in some questions at key points in the presentation, the teacher can, as in the case of Reading and Recitation, check to be sure that the students are understanding the lesson. The teacher could, for example, spend a lesson explaining to the students the many differences between plants and animals; or he might tell the students about the different kinds of simple machines. This technique, also, does not allow the students to become involved with the subject, only with words about the subject. This

lecture method has the advantage that students cannot be tempted to memorize the lesson, but also the disadvantage that students are less involved and that their attention may quickly wander away from the content of the lesson.

3. **Discussion** - This is the technique by which the students and teacher exchange observations, ideas, and questions about the subject matter. Students converse and even argue points with each other and with the teacher. Using this method, a teacher may call on the normally quiet students to give their ideas or opinions. Students and teachers may, for example, discuss the causes of erosion and methods of preventing it; or they may discuss the differences between scientific and traditional Nepali beliefs about the origin of the Universe. Discussion can often lead to a confrontation between different ideas where some experiment, additional information, or special skill is required. Thew alert teacher will capitalize upon such situations and encourage students to secure additional information to clarify, expand, or modify their point of view. This technique has the advantage of allowing students to develop their interests by asking questions and actively participating in conversation with others who may have competing ideas. The disadvantage remains, however, that the students are not physically observing or studying the subject matter.

4. **Outside Authority** - This is the technique of arranging for some person not on the school staff to come to the school to assist in the teaching of a particular lesson. A Forestry Department Official might be asked to teach the students about plants and trees, or an Agricultural Extension Officer might be asked to talk to the class about new seeds and chemical fertilizers and their effects on yield. This technique has the disadvantage that most outside persons tend to simply lecture to students without being aware of what the students do and do not know. If, however, the teacher sees that the guest speaker understands the academic level, subject area concerns, and background of the class, and sees that a full discussion develops, the outside authority can probably answer students' questions more accurately. Also, outside authorities may be able to bring specially prepared visual aids or other items to show the students.

5. **Demonstrations** - This is the technique whereby the teacher collects and uses appropriate items to demonstrate some fact or principle of science. This

technique is often accompanied by discussion. A teacher, student, or group of students may, for example, demonstrate how to tell time by a sun dial, how a lever works, or dissect an animal to show the parts of its digestive system. The greatest advantage of demonstrations is that the students have the opportunity to see what is being taught and to relate the textbook's descriptions to reality. After seeing an appropriate demonstration the students will be more likely to understand the subject and will not have to memorize textbook phrases. The disadvantages of demonstrations is that they take the teacher or students more time to prepare, test, and teach. Sometimes equipment is not available or is expensive; often, however, equipment can be found or made locally, even by the students.

6. **Drawing and Writing** - This is the technique whereby students are given or asked to collect items to study and either sketch or write short descriptions of them. Students could, for example, be asked to make a detailed sketch of a cockroach, showing all its visible parts, or to write a short description of the process of a chick emerging from an egg. The advantages of this technique are that students are encouraged to make observations so that their sketches and essays will be accurate, and that they will handle or otherwise be closely involved with the subject they are studying. All sketches and essays, however, must be reviewed and corrected by the teacher and this may take some time.

7. **Oral Reports** - This is the technique by which, after studying some subject, a student is asked to give a report about it to the class using his own words. Often, subjects such as the description of types of rocks found near a certain local stream or the life of a water buffalo can be used for either oral reports or written essays. The advantage of an oral report is that a student may be able to speak much better than he can write, and thus will be able to convey his ideas and observations best. One of the disadvantages is that no more than one or two students should be assigned to make an oral report on the same topic at the same time. There must be enough topics so that each students will get a unique subject on which to report. Also, when there are a large number of oral reports to be given, considerable class time must be used.

8. **Home tasks** - This is the technique whereby the teacher gives students tasks

to perform during time other than the science period. Such tasks can be of many types: reading, writing, sketching, observing objects, collecting objects, making equipment, questioning parents or neighbors, etc. The advantage of this technique is that it makes the study of science a part of the students' daily lives, not just something to be talked about during the science period; students should begin to see the relationship between science and many things in their daily life outside the school. One disadvantage is that the teacher cannot be assured of the conditions under which such tasks will be done or even if they will be done at all unless he explains the purpose of this technique to the students' family.

9. **Field trips** - This is the technique whereby the teacher takes his entire class of students to some location away from the school for the purpose of observing, studying, or collecting. The teacher might, for example, take his class to a jungle grove to collect mushrooms, ferns, and other special plants, to a water-powered mill to watch a simple machine in action, or to the fields of a farmer to observe seed germination. Certain objects or ideas that cannot be studied within the classroom by any method other than lecture or reading can be taught using this technique to involve the students. Another advantage is that it clearly shows students that the subject of science is closely related to things in their own environment and is not just a classroom exercise. The major disadvantage of this technique is that often a single period of forty minutes is not sufficient to take the students to the desired place, carry on the planned lesson, and then return to the school. If more time is required, the teacher must make necessary scheduling arrangements so that his students and he may spend two or more consecutive periods away from the school, or he must contribute his own time to take students after school or on holidays. Also, it is often necessary for one or two additional adults to accompany the students on the field trip if there is a possibility that a student will become lost or injured.

10. **Games and competitions** - This technique combines learning with play. The teacher devises a learning game or competition for the students, instructs them in the rules, and then lets them play. The teacher might for example divide the class into five teams and have each team try to write down the names

of as many plants a s they can think of, the team with which makes the longest list to be declared the winner. Or the teacher might ask one student to make the noise of some animal, (or call of some bird) and then ask another student to name it and then continue the process until students are unable to think of any other noises or calls. The advantage of this technique is that the students' natural enthusiasm for play is directed towards educational goals; for the student, learning can be fun. Girls, however, may be psychologically unable to participate actively with the boys in the class, especially in competitions. Another disadvantage is that, without proper direction by the teacher, students could become unruly during the games.

11. **Student activities** - This technique is similar to demonstrations except that the students perform the demonstration, at the direction of the teacher. The teacher must collect all the necessary materials and try the activity once or twice himself before class begins so that he will be able to direct the students accurately. The students might mount butterflies, for example, or measure the weight of various objects using balances. The great advantage of this technique is that it give students the opportunity to work with objects rather than just watch the teacher perform the demonstration, and the opportunity to perhaps discover something for themselves. One of the disadvantages is that large amounts of materials are required for all students to participate become expensive and difficult to keep track of. A second disadvantage is that it is difficult for an unexperienced teacher to keep all of his students within his attention yet assist students individually.

12. **Experimentation** - This is the technique whereby the students are given the necessary materials to conduct experiments of their own choosing or in their own way. Students may work individually or in groups of two or more. The teacher gives guidance and assistance but very few explicit directions. The students may for example, be given ants and asked to determine if ants need air to live; the students must then plan and conduct their own experiments. Or the students might be asked to determine what causes shadows. The great advantage of this technique is that it allows the students to be "scientists", to discover things for themselves, and to develop curiosity and ideas of their own. It is a difficult technique to use, however, as different students will progress at

different rates. In a given class, one young student will not have developed the responsibility or skills to carry out such tasks on his own and will need considerable assistance; yet some other students may require none at all. The teacher must be continually aware of how all his students are progressing and be open to calls for assistance. Yet he must not convert experimentation into student activity by giving to much advice or direction.

Combining methods

Any one lesson actually consists of a combination of the above methods. For example: during a field trip to a pond the students might make drawings of the plants they observe there and discuss the parts of the plants with the teacher, and then be given a home task to discover where the same kinds of plants grow elsewhere in their community.

Often, combining techniques within a lesson removes the disadvantages that the techniques would have individually. Discussion, for example, loses the disadvantage of being concerned only with words when it is combined with student activities or demonstrations. In addition, the demonstration or activity is made more relevant and interesting to the students by allowing them to ask questions and make comments. The attention span of younger students is rather short. A teacher should expect, therefore, to change from one technique to another more often with the younger students in order to keep them interested in the topic being studied.

In addition to combining techniques within one lesson as necessary, considerable thought should be given to the order in which different techniques are used in consecutive lessons. It would not be wise to schedule two or more field trips on succeeding days or to lecture everyday. Nor would it be wise to try experimentation before students become fairly successful with carefully directed student activities. Teachers have found that the consecutive combination of certain techniques works especially well. After experimentation, students can give oral reports on the results; or the lecture of some outside authority could be the subject of a discussion by the students and teacher the following day; or a teacher led demonstration could be followed the next day by a teacher guided student activity and a home task of writing a report of the activity.

Taxonomy of Common Teaching Methods
from Science and Society,
Charles E. Merrill Publishing Company

Listening-Speaking methods

1. Lecture
2. Giving instructions
3. Recitation
4. Drill
5. Review
6. Questioning
7. Oral exam
8. Discussion
9. Film analysis
10. Debate
11. Oral report
12. Brainstorming

Reading-Writing Methods

13. Textbook
14. Workbook
15. Chalkboard
16. Bulletin board
17. Problem-solving
18. Laboratory report
19. Team learning
20. Peer review
21. Peer tutoring
22. Programmed instruction
23. Individualized instruction
24. Note-taking
25. Journal keeping

Watching - Doing Methods

26. Demonstration
27. Field trip
28. Contract
29. Hands-on, lab
30. Inquiry
31. Learning center
32. Projects
33. Simulation
34. Games
35. Exploration/discovery

DEMONSTRATIONS AND EXPERIMENTS

Students should keep a record of every experiment and demonstration. The Write-up should include each of the following categories:

1. Title and Experiment Number
   To maintain an organized science notebook, the students and teacher should arrive at a system in which a simple title and number are provided for each experiment or demonstration carried out. Having such a system is important in that it contributes to an organized format from which the students can work.

2. Purpose
   The purpose for carrying out an experiment is best expressed in a simple statement. This purpose may be given by the teacher before the experiment or demonstration or after a discussion or introduction, also the purpose may be arrived at inductively by the students through teacher questioning. The experiment or demonstration may be performed by the teacher, and after a short discussion, review of the purpose is in order. The purpose is different from the behavioral objective for the lesson.

3. Materials needed
   The teacher can generate student involvement by asking students what materials will be needed to carry out an experiment (science process skill).

4. Method
   The students should write in their notebook a concise step by step procedure for carrying out an experiment. The procedure can be arrived at through a number of different ways: teacher writes it on the blackboard, from textbook, through discussion/ questioning.

5. Diagrams
   Diagrams are usually simple line drawings that show how the apparatus looks, or other data that is easier to draw than write in words. Diagrams illustrate the method.

6. Observations

Write down what is observed during the experiment or demonstration. Often, the teacher will need to construct a data collection table that the student will note numerical values like time, volumes, and masses.

7. Summary

Data and observations should be summarized into graphs and charts. Descriptive observations should be included in a concise form.

8. Conclusion

A generalized statement, usually a principle, derived from the data, that should relate to the purpose of the experiment.

TECHNIQUES OF QUESTIONING

Types of Questions

by Roy B. Clariana

A taxonomy like Bloom's Cognitive Taxonomy can be used to classify questions as low or high order. Generally high order questions require the students to do more thinking, while low order questions require the student to recall (facts, procedures,...).

Higher order questions during teaching are believed to cause the subconscious organization of the material within the student and probably promote deeper, more abstract thought.

Low order questions during teaching reinforce important points, thus helping the student discriminate what is important. Low order questions are the mental equivalent of highlighting or underlining in a textbook.

The process of embedding questions in text may be a good way to present content quickly while maximizing student thinking. This method would involve presentation of a bite size chunk of material, perhaps a paragraph or half- paragraph from the textbook. This presentation may involve student or teacher reading outloud or just teacher lecturing, or students reading to self. Next, teacher asks several questions to: 1. highlight the most important item (low order), 2. check for understanding (low order), and 3. generate abstract thinking (high order). Move to the next bite size chunk and continue in the same way. If students do not understand, back up and use a concrete presentation form or example, then reread outloud and ask question.

Embedded questioning is very similar to traditional Nepali methods. It is used extensively in Programmed Instruction and in Computer Assisted Instruction in the U.S. After the students become used to the fact that you plan to ask questions and that they are supposed to answer (habit), questioning may become easier.

Convergent and Divergent Questions

Convergent questions focus on one or a few correct answers. These will be easier to use since they require less language ability on the delivery end, but more language

on the development end. These question can be formed so that there is a one word answer, or can be answered yes-no.

Divergent questions are general What, Why and How questions and may have many student generated wrong and right answers. Understanding a student answer for the question "Why does the sky look blue?" will be more difficult than understanding the answer to "Selective absorption of the different wavelengths of light causes the sky to appear to be which color?"

Techniques of Questioning

These questioning techniques are generally practiced in the U.S. Due to language constraints and cultural differences, some of these will work here and some will not without modification.

Objectives	Skills
To encourage pupil's readiness to respond.	1. Pausing 3-5 seconds after a question before calling on a pupil to answer. 2. Handling incorrect responses in an accepting manner. 3. Calling on non-volunteers to answer a question.
To improve pupil's initial responses.	4. Prompting pupils who are unable to respond. 5. Seeking clarification of incomplete responses. 6. Refocusing the pupil's response.
To increase the amount and quality of pupil participation.	7. Redirecting the same question to several pupils. 8. Asking for questions that call for sets of related facts. 9. Asking higher-order questions.
To eliminate habits which disrupt the flow of discussion.	10. Avoid repeating your question. 11. Avoid answering your question. 12. Avoid repeating pupils answer.